The RUBBER AGE

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LATE NEWS of the Industry

"Moderate Recovery" for Rubber Industry Is Predicted for 1932 by R. G. Dun & Co.

THE general rubber trade has just emerged from one of the most unfavorable years in its history, in the opinion of the research department of R. G. Dun & Company, as expressed in a special survey of the industry issued this month. While this organization concedes that the industry, as a whole, must "mark time" for the balance of the winter, it sees encouraging signs for 1932 in the lowered stocks and deferred replacement demand in many branches of the trade.

"Manufacturers of floor coverings and rubber tile," the report says, in part, "have been operating on a restricted schedule, due to lack of activity in the building trade, this condition having been prevalent during almost the entire year. Production of mechanical rubber goods used in the industrial trades still is on a basis of about 60 per cent of capacity. During the last quarter of 1931, however, evidence pointing to an improvement appeared, and orders were more frequent and in larger amounts.

"Increased production was noted during 1931 in the case of motorcycle tires, insulated wires, insulating compounds, stationers' rubber goods, heels and soles, sporting goods, toys and novelties.

"While the unit volume of sales of automobile tires is only 10 per cent below the record of 1930, the dollar value reveals a drop of fully 23 per cent. Sales of mechanical goods are nearly 25 per cent less than they were a year ago. Inclement weather during the last quarter of 1931 created an unusual demand for rubber footwear and clothing, and the month by month comparison of sales exceeded those for the last three months of 1930. This recovery of sales will cut down materially the reduction, and it is estimated that the 1931 volume in this branch probably will not be off more than 20 per cent from that of 1930.

"Prices now are so low that only the best equipped factories, mechanically and financially, can count on a profit. As a matter of fact, profit and loss deficits were practically uniform among American rubber companies during 1931. Even those reporting a net profit showed a deficit after dividends and other charges were made. It was in 1930 that most companies showed a loss for the first time in many years.

"For the balance of the winter, it is expected that the industry, as a whole, will mark time. Business in hard rubber goods is expected to be fairly steady, with the average about at a normal rate, considering the trend of general business. While no one seems willing to hazard an opinion as to the probable course of the trade during 1932, conditions in some branches are nearly normal, as stocks have been reduced during the past two and a half years to such an extent that they are about one-half the peak figures of 1929. This is true particularly of footwear and rubber clothing. Stocks of mechanical goods still are excessive.

"It is the general opinion that demand must appear

Scanning the Headlines

FIRESTONE *elevates John W. Thomas to presidency, makes Harvey S. Firestone chairman . . . . Members of Rubber Manufacturers Association re-elect officers, enjoy banquet . . . .* GENERAL *reduces common dividends . . . . Crude rubber price remains practically stable during fortnight . . . .* PENNSYLVANIA *stockholders subscribe for* $2,000,000 *additional capital . . . . Rubber in engine mountings and other uses features New York Automobile Show . . . .* GOODRICH *shuts down Hood heavy footwear unit, owing to unseasonable weather . . . . Department of Commerce rubber men move over to new building . . . .* DUN'S *can see only "moderate recovery" for rubber industry in* 1932 *. . . . December factory output, measured by rubber consumption, was lowest in nine years . . . .* NEW YORK RUBBER *adds a seven-man boat, Firestone a basket weave tennis shoe . . . . New Zealand may have a tire and rubber goods factory . . . .* RUBBER EXCHANGE *future sales dropped only four per cent last year.*

early in the current year, and bring with it some strengthening of the price structure. The latter, however, will be dependent, to a large extent, on the price of crude rubber, and it cannot be overlooked that stocks of the latter now are the largest in the history of the industry.

"The gain over the record of 1930 in rubber consumption and sales in several branches of the industry, however, gives some cause for expecting a turn in the course of the industry. This improvement, together with a fairly steady consumption of tires, presents the brightest phase of the current situation."

J. W. Thomas Named Firestone President; H. S. Firestone Made Chairman of Board

RETIRING from the presidency of the Firestone Tire & Rubber Company after nearly 30 years, Harvey S. Firestone was elected chairman of the board of directors of that company on January 12. John W. Thomas, vice-president of the company for 12 years, was named as president to succeed Mr. Firestone at the latter's recommendation.

Mr. Firestone ascribed his desire to relinquish the presi-

J. W. Thomas H. S. Firestone R. J. Cope

dency of the company to a wish to escape the management of details and to make possible an increase in the scope of his activities in keeping contact with the world-wide expansion of the organization. It is understood that Mr. Firestone will in no manner give up any control of the company's activities by becoming chairman of the board.

At the same time Mr. Firestone retired as president of the Firestone Tire & Rubber Company of California. Ross J. Cope, vice-president and general manager of that organization since its establishment in 1928, was elected president.

Mr. Firestone's rise from an Ohio farm boy to the head of one of the world's largest rubber companies is well known to the industry. He succeeded James Christie, first president of the Firestone Tire & Rubber Company, in 1903, three years after the inception of the company.

John W. Thomas, also born on an Ohio farm, has been with the Firestone organization since completing his course at Buchtel College (now Akron University) in 1908. Employed first in the chemical laboratory, he was made factory foreman 18 months later and from that time on his connection with Firestone has been a long series of promotions. He became vice-president in charge of manufacturing at the end of 1919 and in December, 1929, was given the additional title of general manager of the company.

Ross J. Cope, like Mr. Firestone, was born on a farm in Columbiana County, Ohio. He was a county school teacher, was graduated from Oberlin College after a business course, and in November, 1915, went to the Firestone organization. His rise during the past 17 years was rapid and, when the California plant was established, he went there as vice-president and general manager.

At the stockholders' meeting preceding the directors' session, Russell A. Firestone, second son of Mr. Firestone, was elected a member of the board of directors. He was graduated from Princeton in 1924 and since has devoted himself to the sales end of the business. Directors reelected include Harvey S. Firestone, John W. Thomas, Harvey S. Firestone, Jr., Stacy G. Carkhuff, B. M. Robinson, John J. Shea, Harris Creech, H. H. Hollinger and Edson A. Oberlin.

November Tire Shipments Are Higher; Production is Lowest for Ten Years

SHIPMENTS of pneumatic casings for the month of November amounted to 2,887,464 units, an increase of 1.3 per cent over October and 1.9 per cent above November, 1930. This compares with a usual seasonal decline of 26.3 per cent, according to statistics released by the Rubber Manufacturers Association, Inc.

Production, however, slumped to the lowest levels in ten years or more in the case of both casings and inner tubes. Actual output for November totaled 2,500,788 pneumatic casings, a decrease of 15.9 per cent as compared with October, and 5.8 per cent below November, 1930, which had previously marked the lowest point for recent years.

Pneumatic casings on hand November 30 amounted to 7,919,034 units, a decrease of 4.6 per cent under the October 31 total of 8,300,065 units, and 17.5 per cent below November 30, 1930. This inventory figure was the lowest recorded by the domestic industry since November, 1925.

Shipments of inner tubes were the smallest since February, 1922, but production was lower, bringing stocks down further. During the month of November there were 2,443,644 inner tubes produced and 2,594,645 tubes shipped, leaving a stock in manufacturers' hands of 8,119,635 inner tubes. Solid and cushion tire shipments exceeded output for the twenty-first consecutive month, both figures being the lowest in many years, and inventories were consequently brought down still lower.

The tire industry is estimated to have consumed a total of 32,401,919 pounds of crude rubber and 10,450,667 pounds of cotton fabric in the manufacture of all types of tires and tubes during the month of November.

These estimates of the Rubber Manufacturers Association, Inc., are based on reports furnished by manufacturers who produce approximately 80 per cent of the total for the United States, but have been adjusted to represent 100 per cent in the figures quoted above.

1931 Consumption Was 348,986 Tons; December Imports Highest Since 1929

CONSUMPTION of crude rubber by manufacturers in the United States during the year of 1931 totaled 348,986 long tons, according to the monthly statistics compiled by the Rubber Manufacturers' Association. This compares with the 1930 total of 375,980 long tons and with the record 1929 consumption of 469,804 long tons. It is the smallest total for any year since 1924.

Consumption for the month of December is estimated to have been 21,409 long tons, a decrease of 6.7 per cent below the November figure of 22,943 long tons and slightly less than the December, 1930, total of 21,687 long tons. Last month's consumption was the smallest recorded for any month since November, 1923, although the percentage of decline from November compares favorably with previous years. The seasonal decline for the previous five

Rubber Executives At Annual Banquet

Members of the Rubber Manufacturers Association at their 32nd annual dinner in the new Waldorf-Astoria Hotel

Photo by Drucker and Baltes Co.

years for December under November has been 8.7 per cent.

Imports of crude rubber for the month of December, according to the association's own estimates, amounted to 51,931 long tons, the highest for any one month since April, 1929. December arrivals were 18.7 per cent greater than November and 48.8 per cent above December, 1930.

Total imports into the United States for the full year of 1931 are estimated by the association to have been 495,163 long tons. This compares with the association's estimates of 488,343 long tons for 1930 and 561,454 long tons for 1929.

The association estimates total domestic stocks of crude rubber on hand December 31 at 322,826 long tons, an all-time record and an increase of 10.4 per cent over November 30 and 60.6 per cent over the 200,998 long tons reported for December 31, 1930.

Crude rubber afloat for United States ports on December 31 is estimated at 53,940 long tons as against 77,443 long tons on November 30 and 56,035 long tons on December 31, 1930. The total visible stocks on hand and afloat at the end of the year, therefore, rose to a new high level at 376,766 long tons. This compares with 257,033 long tons at the end of 1930 and 180,997 long tons at the close of 1929.

Pennsylvania Reports Good 1931 Profit; Shareholders Buy $2,000,000 More Stock

AT A special meeting of stockholders of the Pennsylvania Rubber Company, of Jeannette, Pa., makers of tires, tubes and tennis balls, an issue of 20,000 shares of first preferred stock at $100 a share was fully and promptly subscribed. This issue will be subject to a dividend of 6 per cent.

The subscription of this new preferred stock issue involving $2,000,000 will provide additional capital and strengthen materially its financial structure.

While the annual statement of the company will not become available until March, W. O. Rutherford, president, announced that preliminary figures show that a very satisfactory profit was earned during 1931 after providing for depreciation, taxes, insurance, interest, writing down of raw material and finished goods inventories and other contingencies.

"The net earnings of the company for the year 1931," said Mr. Rutherford, "are sufficient to provide payment of dividends on first preferred stock, second preferred stock, and leave a substantial margin for common stock.

"The company has made decided progress during the past year in improving its dealer structure and building up a greater recognition for the quality of its product. This was a notable feat, in view of the unfavorable conditions which have prevailed generally and which existed particularly in the rubber industry.

"The outlook is encouraging for an improved volume and more favorable operations during the coming year."

Rubber Manufacturers Association Meets And Reelects Officers for Year of 1932

THE annual meeting and dinner of the Rubber Manufacturers' Association was held at the new Waldorf-Astoria, New York, N. Y., January 11, 1931. At the business session held at 11 A. M., only routine matters were discussed, reports adopted and vacancies in the board of directors filled. Upon adjournment the board met to elect officers for the year, resulting in the re-election of the present officers for another one-year term. Besides John D. Tew, president of the B. F. Goodrich Company, who succeeded to the presidency of the Association upon the death of Samuel Woolner, Jr., last year, the present officers include F. B. Davis, president of United States Rubber Company, first vice-president; C. D. Garretson, president of the Electric Hose and Rubber Company, second vice-president, and A. L. Viles, secretary.

Directors elected for a three-year term included G. B. Dryden, president, Dryden Rubber Company; E. B. Germain, president, Dunlop Tire and Rubber Corporation; A. B. Newhall, vice-president, Hood Rubber Company; William O'Neill, president, General Tire and Rubber Company, and John D. Tew, president, B. F. Goodrich Company. Herbert E. Smith, vice-president, United States Rubber Company, was elected a director for a two-year term, and W. H. Lalley, president, Kelly-Springfield Tire Company, was elected for the one-year term.

The annual banquet was held in the evening in the Roof Ballroom of the hotel and was attended by 403 members of the Association and guests. Only two speeches were made, both reflecting an optimistic outlook for the industry in the coming year. John P. Kennedy, associate editor of Collier's and a well-known writer on economic and industrial topics, was the first speaker and he was followed by Honorable L. J. Dickinson, Senator from Iowa. A group of five songs were rendered by Alan Jones and music during the dinner was supplied by the Waldorf-Astoria Orchestra.

President Tew presided during the dinner as toastmaster and made a few opening remarks in which he expressed confidence in an early return to prosperity for the industry. The dinner committee consisted of W. H. Lalley, George B. Dryden and W. O. Rutherford.

(Other news of the industry will be found on Pages 361-366)

Rubber at the National Auto Show

RUBBER played a more prominent part than ever before in the showing of the new models at the 32nd Annual National Automobile Show, held at Grand Central Palace, New York City, during the week of January 9. The Show is reported to have broken all previous records in the matter of attendance, enthusiasm and actual car sales and has gone far to encourage manufacturers in considering the prospects for the coming year.

As usual the tire companies did not have individual exhibits but practically all of the first-line tire brands of the leading companies were represented on the displayed car models. But aside from tires, rubber figured on every hand in the construction of bodies, chasses, motor mountings and as a vibration dampener in a variety of forms.

The outstanding selling argument in practically all the car demonstrations centered around the effective use of rubber in motor mountings and the Chrysler "floating power" feature,—the latter being a method of supporting the engine in a live rubber mounting at each end of the natural axis passing through its center of gravity. In the Plymouth car 270 individual rubber parts are used. Most of the rubber parts in the majority of the cars are inconspicuous or entirely concealed but are adding increased comfort in riding performance.

Soft rubber is being used as a base in the upholstery of some of the cars, particularly in the side arm rests. This is a feature of the Dodge. Rubber mats, with insulating felt pads underneath, were conspicuously featured in the flooring of front compartments, while rubber draft eliminators were in evidence around pedals and gear shifts.

In body construction, rubber bushings are being used considerably in all frame joints. In the Hupmobile the fenders are attached to the running boards by bolts which pass through heavy rubber insulating blocks. This car also featured a seven-point motor mounting on rubber and rubber mounted transmission. Other minor uses of rubber in the same car included waterproof distribution cap and a flexible rubber cap at the base of the gear shift lever, which prevents grease from reaching the front compartment.

The extensive wiring systems in the new cars also call for an increasing amount of insulated wire.

Rubber spring shackles have been made standard equipment on several cars. The securing of the flywheel to the crankshaft through rubber bushings tends to damp out the noise of the starting gears.

This multiple use of rubber in automobile construction was not confined to the higher priced car models but was also evident in the lower priced grades.

In the accessory exhibits the Custom Built Tire Corporation of America, 161 W. 64th Street, New York City, showed their line of special built casings and the Textile Leather Corporation exhibited samples of rubber-coated top materials.

The General Motors salon was held during the same week of the Show at the Waldorf-Astoria.

While not represented at the Show by exhibits, the leading tire manufacturers had sales and technical representatives present in New York during the week.

Economies in Plantation Practices

SOME details of the extent of the drastic economies which have been forced on the rubber plantation estates in the Far East, through the drop in the market price of the commodity, were given in recent press stories in the *Financial News* and *The Economist*, both of London.

Estates which previously worked at a cost of about 5½d. are now working at 2¾d. f.o.b., and this figure in many cases has been reduced to 2d. Although these extremely low figures may be temporary, nothing short of a world trade boom is likely to raise them to their previous level, unless it be a widespread and fatal disease among rubber trees.

Among the chief measures adopted to reduce costs coolie wages have been reduced at least 20 per cent, and a higher standard of work has been introduced. This has facilitated the reduction of labor forces, and only the healthiest and most efficient have been retained. Periodic tapping has been adopted widely because it produces a higher rate of yield, even though the actual annual yield may be lower. This enables the tapper to bring in more latex each day, which reduces the tapping cost. Supervision has been reduced by periodic tapping, because areas out of tapping require little European supervision. In this way the acreage of rubber per assistant has been increased from 500 to 2,000 or more. Asiatic supervision under European superintendents is the solution that has been adopted most frequently. Weeding is either included in the tapper's task or done by the tapper as afternoon's work at a low rate of pay.

The contract system of tapping with Chinese has been adopted widely. Owing to the low price of tin, there are many Chinese coolies out of work. Contractors employ them on estates and pay them little more than their food. Malayan law allows the Chinese contractor to supply food to his coolies and make a profit out of the transaction, whereas the estate owner employing Tamils is not allowed to do this. At present the Chinese contractors realize the position, and if they can keep their labor together and avoid a loss on the contract they are content. Many have resorted to keeping pigs, the care of which provides occupation for the coolies' spare time. The disadvantage of this system from the estate viewpoint is that trees may be wounded by bad tapping and too much bark may be consumed; but employment is now so scarce that a high standard of work can be obtained with comparatively little supervision.

Rubber and Mohair Combined for New Shoe Welting

RUBBER and mohair shoe welting has been developed at Sanford Mills, Sanford, Me., according to a recent announcement of the Mohair Institute, Chicago, Ill., the new material being devised to prolong the life of shoes and to give a storm welting with greater flexibility and improved waterproof qualities.

By a patented process, the mohair fabric with 20,000 to 40,000 hairs to the square inch is made into a base for the rubber, the combination, according to the announcement forming an excellent substitute for grain leather. Tests over a period of years before the material was placed on the market, showed that the new welting protects stitches against breaking, it adheres more closely to the shoe, needle holes close tightly after sewing and the material does not deteriorate unduly under heat or changes of temperature. Samples were kept in heated offices for four years before they showed signs of breaking down.

Ventilation *for* Solvents *in the* Rubber Industry*

Industrial Poisonings Due to Vapors Largely the Result of Poor Plant Engineering—Vapors Met With in Rubber Industry Mostly Heavier-Than-Air

By P. W. GUMAER
Consulting Engineer, New York City

THE principal thesis in my remarks will be a plea for better engineering as pertaining to this particular subject, and less guesswork. I will make a very broad statement, and if any of you men can bring up instances to contradict it I would be very glad to have you do so. All cases of chronic industrial poisoning due to vapors are the result of poor engineering. Notice I don't include dusts in that, as a man can get radium or lead dust on his hands and transfer it to his mouth. Personally, I don't consider that an engineering problem, but a hygienic one. As to vapors, you can't transfer them in any appreciable amount to your mouth. They are absorbed by inhalation.

The removal of these vapors is something that requires a special training and experience. If you have enough experience you possibly do not need the technical training. But it is not a job for a tinsmith, a ventilation contractor, or anybody who happens to be handy. That, I found, is a tendency, particularly in the small plant. The state department of labor or health inspector comes along and finds out you are using a certain solvent or a certain chemical, and says you must have ventilation. There is no study made as to what kind of ventilation is necessary, but he just says ventilation, some ducts and a fan.

If you build a large steam turbine or generator or steam boiler, any large equipment in other lines of engineering, a very thorough test is made on it, a very complete test, depending on the purpose in view. You test the efficiency, the capacity and the overload, and the manufacturer has to make those tests good, that is, his specifications are very clear and exact. If the test falls below certain standards the equipment can be rejected.

What test do we have in ventilation of toxic vapors? There is one large industrial state that pretends to have tests. That is, to install any ventilating equipment, you have to file triplicate copies of the plans and they have a man sitting at a desk who goes over them and rejects or approves them. They decide what thickness of metal you have to use in your duct, what size blower, how many cubic feet of air a minute to remove, what static suction to use. All those things may be of some help, but they are absolutely no measure of the final result. The only thing that means anything at all in ventilation of industrial poisons is the amount of vapor that remains in the air that the workman breathes. If you don't know that, everything is guesswork.

The ventilation of vapors is similar to that of dust, but it is not identical. The size of a molecule is infinitesimal as compared with a particle of dust. You know that the faster water flows the larger the particles it will carry along. Air is the same. You need a high velocity in carrying dust. They use as high as a thousand feet per minute in some cases. The minimum static pressure permitted in some states is two inches of water suction. The problem is different in removing toxic vapors. You don't need a high velocity unless you are moving contrary to the natural circulation. If the equipment is designed correctly the high velocity will draw in an excessive amount of air and you are apt to remove more air than would otherwise be necessary.

Ventilation of these vapors should aid the natural circulation; that is, for lighter-than-air vapors you should draw them up, for heavier-than-air vapors you should draw them down. When you do that, you can use a lower velocity, handle less air, and remove a larger percentage of the vapors.

The vapors met with in the rubber industry are mostly heavier than air. We should use down-draft suction. If you meet with a new chemical and don't know its density or whether it is lighter or heavier than air, there is a very simple way of finding out. Find out the molecular weight. If the molecular weight is higher than 29, then it is heavier than air. If less than that, it is lighter than air. That is more accurate than other tests on the ventilating equipment.

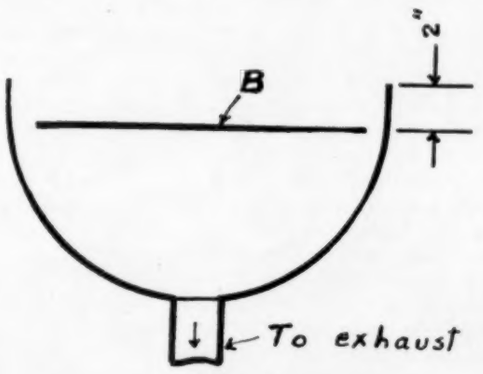


Figure 1

Figure 1 is an example of efficient ventilation. B is a moving belt carrying pieces of cloth coated with rubber cement from which a solvent is being evaporated. An

*Paper presented before the 20th Annual Safety Congress and Exposition, Chicago, Ill., October 12-16, 1931.

enclosure of sheet metal is built underneath the belt. It extends two inches above the articles being dried. A small suction, less than one-eighth inch of water suction, is sufficient to remove the vapors so that no measureable amount escapes over the edge into the room. This construction should not be used if heat is applied to hasten drying.

Figure 2 shows another example of ventilation of solvent vapors. This example refers to the coating of animal leather with lacquer by hand. The principal, however,

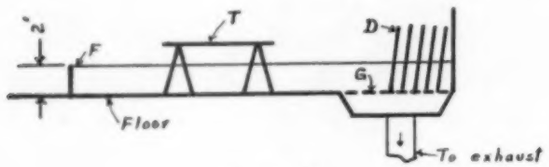


Figure 2

can be applied to operations in the rubber industry. T represents the table where lacquer is applied. F is a gas tight fence two feet high surrounding the operation. D represents coated hides being dried. G is a grill covering a vent duct under the floor. Considerable quantities of vapor are given off during the drying process. This vapor falls to the floor and is drawn into the vent duct instead of diffusing into the room. It is surprising the small amount of air necessary to obtain effective ventilation when the above method is used.

In the design of ventilating equipment, what do we need to know? We need to know the toxic limit of the material you are using; that is, how much of the vapor can remain in the air without endangering the health of the workmen, even those who are most susceptible. Of course that is not accurately known on many materials.

You also need to know the quantity used in the process. That tells you the amount of air to be handled. A friend of mine was discussing this with me the other day and he said, "Don't you take as your first consideration the concentration at the breathing zone?" Well, you do in some cases, but not always. You have to use that with some judgment.

I made a test a while ago of an experimental machine for coating pencils with lacquer. It was set up in a large room alongside the other machines. It was more convenient to make the test on Saturday when the factory was closed down. A test of the breathing zone then would have been absolutely useless because it would have taken hours for enough of the vapor to diffuse into the atmosphere to give an appreciable reading. What we did was to design the ventilation so that you couldn't detect any vapors at all three inches above the pencils.

The measurement of the concentration of vapors at the breathing zone, after the machine is complete, to find out whether you have accomplished your purpose, is absolutely necessary.

As to the future of industrial poisons, the engineer and the physician are both dependent upon medical research. The engineer has to know the toxic limit of the particular chemical, that is how much the workman can breathe without endangering his health. The physician wants to know specific methods of diagnosis and if possible information on susceptibility, what kind of individuals might be more susceptible, and methods of treatment.

I think the responsibility for industrial poisoning rests on three parties, speaking generally of the country as a whole. First you have the producers of a particular chemical. The large producers are beginning to realize that they have a responsibility when they put a chemical on the market to be used by others. Medical research will show whether the material is toxic or not, and just how toxic it is.

In the use of the materials, the rubber factory and others using it have a responsibility in applying the results of the research through the engineer, in ventilation; the industrial physician, in medical examination, early diagnosis and treatment. The state has a responsibility which is chiefly supervisory. If the state tries to enter into engineering, that is making detailed specifications, it isn't fair either to the state or to the individual industry, because suppose they come along and tell you that you have to install the equipment having certain suction, certain velocity, removing a certain amount of air at a certain place, and then tests are made and you find a dangerous concentration. Well, they will come back and want you to change it. You have a perfect right to say you installed it as they told you to and you can't afford to change it. But if the state restricts itself to supervision in merely determining whether there is a hazard after the equipment is installed, it is more satisfactory. With the new processes and new machines creeping up all the while, no one can sit down at a desk and look at a blueprint and tell whether that equipment is going to carry off the vapors, without some preliminary tests and final tests when the equipment is finished.

Discussion

A. M. Dietz (Pennsylvania Rubber Co., Jeannette, Pa.): I would like to inquire about that first figure. Does that indicate a duct below the belt?

Mr. Gumaer: Yes, with a duct below the belt.

Mr. Dietz: Would that carry away heavier-than-air vapors?

Mr. Gumaer: I have never found, with heavier-than-air vapors, a place where a fan placed in the wall near the ceiling is worth anything at all. It merely creates a false sense of security. I made tests of the concentration in fans near the ceiling and never found it more than 25 parts per million. You have to remove a tremendous amount of air and you can't get it all out. General ventilation in some cases, particularly if you have a cross draft and the doors are open right to the floor at opposite ends of the room, with the small amount of solvent that is used, may carry away the vapors, but then you have the possibility that in inclement weather the doors will be closed. As to ventilation from windows, if the windows are high it isn't sufficient, because you don't ventilate below your window sills. Occasionally the drafts blow it up into the breathing zone.

Dr. J. N. Shirley (Examining Physician, Hood Rubber Co., Watertown, Mass.): What type of instrument would you have for testing vapors? We never gave it a thought. We run fans up near the windows to the highest point, and they are pulling from both sides.

Mr. Gumaer: The instrument used is called an interferometer. With other methods it takes several hours to get one sample, and you have several days of laboratory work to know what you have in just one test. With this instrument you have your result right away. It is based upon the refractive index of a vapor.

Dr. Shirley: In the picture of a coal mine I noticed they had some kind of an instrument for testing the air. The miner used some sort of an instrument, made several motions, and then walked over to a cabin in the wall, and in a very short time they had a test of the air in that particular chamber.

Mr. Gumaer: There are several instruments on the market for indicating carbon monoxide methane, and other vapors. But they are not accurate enough when you consider chronic poisoning. As a prevention against acute poisoning they may be satisfactory. If you were going to send a man down into a tank and wanted to know if there were vapors in there, those instruments might be of some value, but in chronic poisoning they are not sensitive enough.

Dr. Shirley: I think Mr. Dietz' question was along the line of where they dope the felt.

Mr. Dietz: Where they dope the inside of the tennis ball. It travels over an open conveyor.

Dr. Shirley: It is my understanding that in this factory, unless it has been changed in the last six or seven years, they have solved the problem where they dope their tennis ball felt, by partitioning off that section of a room with the exhaust fan at the wall on the floor level in the closed side of the room. This has, I believe, prac-

(*Concluded on page 359*)

A Survey of the Tire Trade in TROUBLED CHINA

Second-Line Tires Predominate — Competition Is Particularly Severe—Manchurian Market Disturbed by Military Unrest — Further Extension of Japanese Influence Will Aid Japanese Tires

FROM reports emanating from the Department of Commerce it would seem that the market in China for tires was simmering down to "second-line" grades. Most of the Chinese companies and agencies have been carrying second-line tires for some time, due to the fact that such grades are 15 per cent lower in price. The low purchasing power of interior customers, which is further depleted by the drop in silver exchange and the fact that there are no facilities in the interior for the repair of tires, has made the second-line tires the most popular grades for this particular market.

The published 1930 "Returns of Trade," recently released, again fail to separately classify motor-car tires from bicycle and rickshaw tires, though a promise to do so had been given by the customs authorities. Through the records of the statistical secretary of customs, the following information has been received (details as to country of origin are not available):

China's Imports of Tires and Inner Tubes

(Excluding Hong Kong, but including Manchuria)

Item	1930		1931 (January-June)	
	Number	*Value (haikwan taels)*	*Number*	*Value (haikwan taels)*
Tires:				
Pneumatic	53,119	1,688,631	20,338	847,218
Solid	2,408	62,616	982	47,369
Inner tubes	47,642	249,833	13,686	99,216

(Haikwan Tael approximately $.35 U. S. Currency.)

Competition remains as severe as ever and is responsible for the several changes in discounts that have occurred during the last quarter. All tire companies have taken such heavy losses in this territory that there is now a glimmering hope that they may in the near future get together on a "live and let live" basis. American companies are watching the next move of the Dunlop tire people, owing to England's change from the gold standard. It is not yet known whether the Dunlop organization will decide to quote in sterling or change over to gold-dollar quotations.

The "Bridge Stone" tire, a product of Japanese manufacture, has entered the Chinese market. It is marketed through Mitsui Bussan Kaisha at Shanghai, and by Taishin Yoko at Dairen, which has agencies in Mukden, Changchun, and Harbin. Prices are considerably below American tires. So far, very little business has been done. This may, however, be attributable to the fact that the tire was put on the market shortly after the recent Sino-Korean troubles. Japan's military occupation in Manchuria has revived the anti-Japanese boycott, so that tire distributors are little concerned over competition of this brand of tire. Only four sizes of these tires—two popular passenger cars and two heavy-duty sizes—are available.

The Central Garage at Mukden, which had the agency for Michelin tires, has gone out of business; its stock, estimated at 50 to 100, has been sold at 60 to 65 per cent discount. No new agent has been appointed.

Shanghai stocks are somewhat under normal for the leading tire companies, with a tendency to keep them so under present business conditions. The cancellation by the Chinese maritime customs of duty-drawback privileges has also had some effect on Shanghai stocks. Where companies formerly stocked in Shanghai for Dairen and Hong Kong needs, this is being discontinued, and direct factory shipments are being made to Dairen and Hong Kong, respectively, as needed, instead of drawing stocks from Shanghai.

Tientsin stocks remain approximately the same, being fairly high for the volume of business offering. Imports although light, have been sufficient to take care of the business done. Stocks are believed to be sufficient for several months, even with a considerable reduction in imports.

Dealers in Tientsin report a slight improvement in business during the summer quarter. There has been little further expansion of bus services, but fairly satisfactory operating conditions have now encouraged operators to make some investments in new equipment, which they were hesitant about doing during the preceding two quarters. Given continued stability in the political situation, this business will probably show further improvement during the coming quarter.

Except for this slight improvement in consumption by busses, largely in the Peking and Tientsin district, there has been little change in the general tire situation.

Manchuria

Manchuria was just beginning to develop as an automotive market when the present depression set in. Until quite recently, its market has been more or less subsidiary to the larger markets in the south of China, and most of the agencies in this area have been sub-agencies of Shanghai and Tientsin companies. This condition is gradually changing, and many of the local agents of automobiles and accessories have become quite independent of the dealers in the south and are making direct connections for the purchase of their goods. These larger accessory dealers are also capable of supplying smaller dealers in outlying districts and in that respect are capable of acting as distributors to certain outlying areas.

Manchuria now has about 7,500 cars in all, which are distributed approximately as follows: Dairen area, 1,200; Mukden area, 3,000; Harbin area, 3,300. Included in the foregoing are approximately 55 or 60 bus lines, operating

a total of about 550 cars of all sizes. These lines are operating in outlying districts and connect small towns with bus service. Motor trucks are becoming more general and are gradually replacing the small carts in the large cities. The greater number of cars operating in the country districts are permitted to become very dilapidated in operation, and very few accessories of the luxury type are purchased.

Since the last quarter of 1929, however, automotive business has fallen off considerably in Manchuria, owing to a general decline of foreign trade and to the depreciation of silver, which has increased the cost of automotive equipment in native currency about 50 per cent. The automotive market has been very hard hit, and buyers are refraining from purchasing anything but absolute necessities. This condition is undoubtedly only temporary; but at the present time there are practically no imports of automobiles, and dealers in automotive equipment and accessories are taking considerable losses and are not generally interested in investing in further equipment unless immediate profits are assured.

Hong Kong

In Hong Kong business was good throughout the third quarter of 1931, but price cutting continues. Agreements between the various tire dealers to maintain prices have apparently been unsuccessful. Two American brands and Dunlop are estimated to hold about 75 per cent of the market.

Tires manufactured by Tan Ka Kee of Singapore are having very little effect on the market and none of the local rubber manufacturers has yet attempted to manufacture tires.

Stocks, though exact figures remain unavailable, were reported somewhat higher than during the second quarter. In this connection it should be noted that nearly 60 per cent of the imports of rubber tires into Hong Kong during the first eight months of 1931 have been re-exported, though more than half of the motor vehicles in this area are located in the Colony of Hong Kong. This would tend to indicate that during 1930, stocks became exhausted in the outports and were replenished during the early months 1931.

K-Gutta

K-GUTTA, a form of thermoplastic, flexible insulating material designed especially to meet the needs of the modern high-speed submarine telegraph and telephone cable, has been recently developed by the Telegraph Construction and Maintenance Company, Ltd., of London. A comprehensive description of the new material recently appeared in the December 26, 1931, issue of *The India Rubber Journal*, under the authorship of J. N. Dean, from which the following brief abstract is made.

The new material is a mechanical mixture of 60-70 per cent hydro-carbon from gutta-percha or balata or both, with 30-40 per cent purified petroleum jelly, stabilized with an antioxidant. Its manufacture is very simple. The warm raw gutta-percha or balata is crushed in thin sheets almost amounting to shreds, by rapid passage through closely set rolls in the presence of moisture. These sheets are dried by a circulation of dry air or nitrogen until ready for deresinification. Special low boiling point gasoline is then pumped over the dried sheets at a temperature not exceeding the point at which solution of the hydrocarbon commences. Circulation is continued until the resin content is reduced to below 1 per cent. The deresinated material, or gutta, as it is termed, is now dissolved in some fresh spirit to as strong a solution as its natural viscosity will allow, usually about 5-7 per cent. To this is added a filter-aid, such as a special earth or charcoal, and the solution is filtered through a close cloth or paper, which has been precoated to prevent clogging. The hydrocarbon is now recovered from the solvent by distillation with steam or by refrigeration.

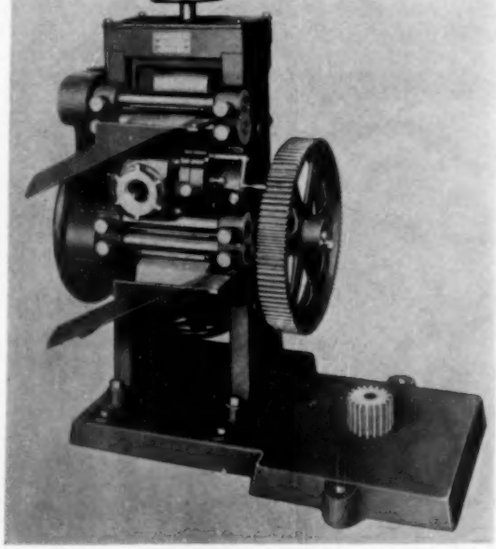
The addition of petroleum jelly may be made either to the solution after filtration, but before steam distillation, or it may be added in a mixing machine after solvent removal. In either case the material is finally processed in the usual gutta-percha machinery, during which the antioxidant is added. It is then passed on for wire insulation possessing about .5 per cent moisture. The covering operation requires nothing special but that the temperature should be kept between 95 and 100 degrees Centigrade.

The advantageous properties of K-Gutta may be summarized by saying that it has the mechanical and chemical advantages of gutta-percha, with a di-electric constant of 2.5 and a conductance of less than 10^{12} ohms per centimeter cube, measured under sea-bottom conditions.

K-Gutta is not to be confused with Paragutta, another cable insulating material, recently developed by the Bell Telephone Laboratories. Paragutta is a combination of purified gutta-percha or balata and crude rubber, from which the nitrogenous bodies have been almost completely eliminated, whereas, K-Gutta is a mixture of gutta-percha or balata and petroleum jelly. Paragutta was described in the February 25, 1931, issue of THE RUBBER AGE.

Lead Stripping Machine

ELECTRICAL wire and cable manufacturers, when producing round cables for the most part, occasionally have the problem of removing the lead from an oval or duplex cable. This is easily taken care of by the adjustable guide and splitting head on the newly improved lead splitting machine, recently announced by John Robertson Company, Brooklyn, N. Y., which is shown in the accompanying illustration and which has two separate adjustments to take care of the large and small diameters of oval cables.



Another feature of the machine is an easily accessible and quickly adjustable device provided for the depth of the lead splitting knives. These features are equally important to manufacturers of rubber garden hose, who are using the lead casing process, as adjustments for different diameters of hose can be made in a few seconds and the expensive and cumbersome guide bushings are not required.

Safeguarding the Health of Compounding Room Employees*

Education as to the Hazards of Various Compounding Materials Is Essential—Frequent Physical Examination of Workers Advocated

By P. B. Martens
Industrial Commission of Ohio, Columbus, O.

WHEN I ask the employees in the plant what are the hazards in the compound room, they very readily agree usually that they do not have any. However, we all know that we have our little hazards in the compound room, and I don't know of anything that is of greater importance than good housekeeping. There isn't anything in the compound room that would injure the health of employees except the ingredients that are handled there, and there is just a doubt in my mind as to whether the man working in the compound room is given sufficient education as to the products he handles.

I know it to be a fact in a large number of places that a man will be given a respirator and told to use the respirator, but he is not told why. A certain man not long ago told me that he put a new man in the compound room, the foreman handed him a respirator, and the very next thing happened was that he was looking for the exit. He said he didn't want to die, and if there was anything in there that necessitated his using a respirator, he wanted to get out.

I am a firm believer in educating the employee and telling him what the hazards are, and also telling him what he must do to protect himself. We have lots of things that are dangerous, and a man may say the litharge is about the most hazardous thing that we have. I know a great number of the plants are taking proper care of their employees along that line. I don't know a better method than is followed by some of the large companies where they furnish the worker a complete change of clothing when he enters upon his duties at the beginning of his shift. The men are rotated. If there are 30 or 40 employees in that department, the man will be exposed to the lead hazard only as frequently as the number of men employed in that department. If it is ten days, every ten days he is exposed to the lead hazard. A man in good physical condition rotated in that manner will be able to throw off any lead that may be consumed, if he takes proper care he will be able to come back in there without improper effects.

Supervision to Enforce Rules

I realize that we may tell men they must do this, they must take care of certain sanitation, but unless supervision sees that those rules are enforced, then it is just too bad. I frequently get into a department where there are health hazards, and instead of wearing the respirator you will find it hanging upon a post somewhere. You call a foreman's attention to it and usual remark is, "Well, he should be wearing that." But he doesn't take the right step to correct the violation of that safety rule.

The laboratory, where the formulas are compiled, should take the first step in the safeguarding of health of employees. As a usual rule, when a formula comes into the compound room it is not given a name. The person handling the pigments and compounds doesn't know in a great number of cases what he is handling. He is just handling a "number." That is number so-and-so and this is number so-and-so. I think if the foreman and the laboratory would work closely together along that line they would be able to educate their employees to be cautious and handle dangerous chemicals or formulas in a more safe and sane manner.

As to the manner of dumping drums into the hopper, the greatest amount of dust is raised at the time of weighing pigments. I have seen cases where the hopper is up on the floor above and the bins are below. They will be dumping the pigments into the hopper without closing the bins downstairs, and the very first thing that will happen will be a cloud of dust coming out of these bins. Some employees are very careless and spill pigments all over the floor, and in a very few minutes they will be walking around and stirring up a cloud of dust.

Function of the Medical Staff

Those are the health hazards. The medical staff in the large plants do follow these things very closely, but in the small plants where a medical staff is not available, I think some means of examination should be installed. I realize fully that when a man enters the service of the company he is given a thorough medical examination as to physical condition. May I cite a case? This is not in any way connected with a compound room. A man employed as a crane man for years, entered the service of the company in perfect physical condition. His medical record established that fact. One day he walked out on a crane beam in violation of the company's rules and without throwing out the main switch; and as he stooped over to place the trolley arm onto the feed wire he evidently became dizzy and fell down on the feed wire and was electrocuted.

After the company had paid compensation to the widow, the widow came to the service department of the company and asked the manager to assist her in disposing of an automobile that they had. The inquiry produced the fact that the machine was nearly four years old, and when they asked her for the mileage on that car it was less than a thousand miles. She finally told the manager of the service division that they had bought the car and only driven it a few

*Paper presented before the 20th Annual Safety Congress and Exposition, Chicago, Ill., Oct. 12-16, 1931.

months, but the husband ran into the ditch one Sunday afternoon—he became dizzy and fell on the wheel. Her statement was, "Since that time we have been afraid to go out driving."

The widow admitted then that the husband had been afflicted with heart trouble for more than three years. Now, had that company taken the precaution of re-examination frequently, say every six months, I think that man would have been removed from the work of handling a crane, endangering a number of workmen. I believe that re-examination of employees, irrespective of the positions which they occupy, should be made very frequently, but not with the object of removing physical defectives from the service. In my experience we have always found that removing physical defectives from hazardous conditions or conditions unsuitable to them, and putting them on work that they are well able to do, has prolonged the life of the men and has removed the hazard of their injuring fellow employees.

Another hazard in connection with the compound room is in cutting rubber. That, however, is a physical hazard and not a health hazard.

There is nothing that I care to stress more than cleanliness in the compound rooms, the enforcement of the use of safety appliances installed, and frequent inspection of respirators. There are only a few things that are a detriment to the health of employees in the compound room, and we must stress cleanliness. Every compound room should have at least one shower facility for each fifteen or twenty employees. I know that some of our compound rooms in the rubber industry do not have shower facilities, and the man will go home and carry on day after day without having the opportunity of receiving the sanitation that he really should have.

Discussion

CHAIRMAN HUNGERFORD: Thank you, Mr. Martens. Mr. Schneider, do you still use the soap treatment on employees in the compound room?

W. L. SCHNEIDER (Safety Director, The B. F. Goodrich Co., Akron, Ohio): Yes, we do, with lampblack or pigments that do not come off readily. That is the only purpose of that type of soap. We call it vanishing-cream soap. It is a composition of starch and soap preparation which is used either before or after taking a bath. It is more effective by using it prior to the shift, and it keeps the penetration of the lampblack and some of the other pigments at a minimum; it is readily removed.

MR. MARTENS: May I ask Mr. Schneider if they still continue the supervision of the sanitation of the employees, seeing that they go through the process of a good shower before they change back into their street clothing?

MR. SCHNEIDER: When we started out we had what we called compulsory supervision, but we don't have to do it today. We have made our shower baths so attractive that you will rarely find any man going home without taking a bath.

J. Q. LEE (India Tire & Rubber Co., Akron, Ohio): I might suggest that if you want to create interest, let the company furnish soap and towels, and they will all be taking a bath. We furnish soap and towels for all employees.

B. J. BOSTWICK (Industrial Relations Department, Gillette Rubber Co., Eau Claire, Wis.): In our compound room we stress cleanliness, Mr. Martens' main theme, and we allow thirty minutes paid time at the end of the shift for men to clean themselves up before going home. It is very effective.

MR. SCHNEIDER: We pay the men the time for taking the shower. I might also mention we absolutely prohibit the use of tobacco chewing. I think everyone recognizes that that is important.

CHAIRMAN HUNGERFORD: To the contrary, we permit chewing tobacco. We prohibit it in no place. However, we show them the way to take a chew, so as not to get it affected by the materials in use in the plant.

R. A. BULLOCK (Corduroy Tire Co., Grand Rapids, Mich.): How about ventilator hoods over the scales where the compound workers weigh up the different materials? I would like to know if that is advisable.

MR. MARTENS: Yes.

J. M. KERRIGAN (Manager, Industrial Relations Department, U. S. Rubber Reclaiming Co., Inc., Buffalo, N. Y.): One thing you have to watch is the density of compound. It varies with the different types of compounds. We have a problem which we try to work out. It is hard sometimes, but it is effective.

CHAIRMAN HUNGERFORD: We were using a compound which was very light, and it also had a very bitter taste which was objectionable. We placed a scale on a hood and the man pulls a lever and empties the required amount, watching the scales. That is completely ventilated. Also where we have objectionable compounds, especially in connection with master batches, the material is placed in certain quantity bags, with certain numbers of pounds, whatever is necessary for a batch, and when the compound ticket calls for that material it goes to the mill man, and it eliminates the handling of the compound and eliminates exposure which you would have otherwise. We use it especially with lampblack.

MR. BULLOCK: Do you mean you buy the compounds weighed up in those bags?

CHAIRMAN HUNGERFORD: Yes.

MR. BULLOCK: If it were necessary to weigh them yourself, would you have a ventilator over the scales?

CHAIRMAN HUNGERFORD: Yes. We have several that we cannot buy that way, so we put it up in bags.

Argentine's Rubber Heel Market

DOMESTIC manufacturers have gained complete control of the Argentine rubber heel market and practically eliminated American and other foreign competition. Recent custom duties and the extreme depreciation of the Argentine peso during the past year have aided the "Industria Nacional" and placed further obstacles in the path of the importer of rubber heels. The largest and most important Argentine manufacturer of rubber heels is the newly established branch of a large American automobile tire manufacturer, Neumaticos Goodyear S. A., authorized on November 8, 1930, with a capital of 2,500,000 paper pesos. The factory is located at Hurlingham and started operating on January 24, 1931.

The second most important Argentine manufacturer of rubber heels seems to be the firm of E. Costa & Cia., Buenos Aires. They manufacture several brands of rubber heels, some of which are manufactured to be sold exclusively by large shoe finding houses. Other manufacturers of rubber heels are Pirelli S. A. P., Buenos Aires, Bobadilla & Cia., Avellaneda, and several smaller firms.

The quality and appearance of local manufactured heels are generally lower than that of imported heels, except in the case of those manufactured by Neumaticos Goodyear S. A. There are several well capitalized manufacturers of mechanical rubber goods and rubber goods in general in Argentina who could probably start manufacturing rubber heels immediately should the market prove exceptionally profitable.

Rubber in Bauxite Works

THE Sulphates Company, of Yarraville, Australia, has found an interesting use for rubber in the manufacture of sulphate of aluminum and other sulphate products. In the firm's treatment plant crushed bauxite ore is fed into a digester, 1,120 lbs. at a time. This digestor is a vertical steel cylinder with conical ends, lined with rubber. A paddle near the lower end of the digestor stirs up the material when the apparatus is working.

Prior to the discovery of the use of rubber lining, heavy sheet lead was used, but this gave trouble and lasted such a short time that operations were unduly hampered. Since the introduction of rubber very little trouble has been experienced. The hot sludge, consisting of sulphates and some insoluble material associated with the bauxite, is discharged into a storage vat, where the solubles are dissolved in water.

Ventilation for Solvents in the Rubber Industry

(*Continued from page* 354)

tically entirely removed the hazard of that particular operation. That fits in entirely with Mr. Gumaer's idea, with heavier-than-air vapors.

There is one question I think Mr. Gumaer has left perhaps a mistaken impression about, in that second diagram, in the doping of hides. It isn't entirely the question of the evaporation of the vapor, as simply demonstrated there. On the doping of these hides there is manual operation of the worker, carrying that dope back and forth across the hide to cover the entire area. That creates air currents. The fumes do not entirely go down. They do eventually, but during the operation they are scattered in the air in many cases far above the level at which the man is working.

I can see where the diagram, as Mr. Gumaer has it on the board, is much better than the plants were six or seven years ago, where, if I remember correctly, in many cases the exhaust fans were on one side of the room, frequently drawing the air not only from the working space where the men are doping the hides but from the space where the doped hides are being dyed. In other words, bringing the concentration by the worker to the less concentrated part of the room. But I think it is a mistake to leave in the minds of the men that such a diagram is entirely practical because of this agitation of air currents carrying the fumes from the working surface of the hide up above the breathing level of the worker.

That is the problem which I believe has made the use of benzol in doping hides a serious problem. I believe that some concerns are trying to overcome that by spraying the dope on rather than using about a quarter of a section of a barrel-head. That is what it looks like.

MR. GUMAER: I have made thorough tests at the breathing zone and I couldn't detect more than 25 or 50 parts per million of benzol. That is, the detection in that particular case was the total vapors including acetates. You do get some stirring up. If it were quiet and you had no drafts and no movement, you wouldn't get any benzol four inches above the hides, but it does stir it up somewhere around a foot.

J. Q. LEE (India Tire & Rubber Co., Akron, Ohio): What is the greatest amount in mixtures at which you found a man can work in safety without getting poisoned?

MR. GUMAER: I wouldn't want to commit myself on that because there is a thorough research on benzol under way and that will be answered in the next year or so. I have found as high as 2200 parts per million at the breathing zone in some factories.

E. W. BECK (U. S. Rubber Co., Passaic, N. J.): If you had a room with a tank similar to what you suggest, where you could not put your hoods, would you not get a pocket on your lower left-hand side, and how would you lay out your exhaust to take care of your benzol fumes?

MR. GUMAER: You would get a higher concentration in the corner, but it doesn't build up to a height of two feet, and your concentration, I would estimate, would be around 500 points per million.

MR. BECK: Would there be any explosion?

MR. GUMAER: No. There would be at 15,000 parts per million. You see your safety factor there is very great. If you arrange your ventilation, say, for health, you will have absolutely no explosive hazard because your explosive range is very far away.

MR. BECK: Yes, but I am speaking of it at one height and you are speaking of it at another.

MR. GUMAER: You would have a higher concentration but it couldn't build up to an explosive limit. If you have a tank, then the best thing to do is to put a rim around it and have local ventilation. Local ventilation is always the best because you don't have to handle as much air.

CHAIRMAN HUNGERFORD: I just wonder if there are any members who use in connection with their benzol program any definite follow-up by their medical departments on people who are exposed to benzol?

B. J. BOSTWICK (Industrial Relations Department, Gillette Rubber Co., Eau Claire, Wis.): We have practically eliminated it, but we were using it a few years ago. At that time we had a physical examination, and found one case that required a little attention. We brought it back to normal blood count. That was at the suggestion of the industrial nurse representing our insurance company.

CHAIRMAN HUNGERFORD: I might say that on our benzol program people who are exposed to benzol are given a blood count test every thirty days and by that method we have been able to control it pretty well. We have eliminated the use of benzol in a lot of places because we have found out that a solvent which was not toxic could be used just about as well as far as the profit was concerned. However, we do use it in large quantities in our companies, especially in our gum-dipping process, and we found out that it has been admitted that our laboratories recommend benzol.

We find that some people are more susceptible than others. In our company they won't send a blond anyplace where they have benzol. It seems funny to me, but that is the rule. It just happens that every case they have had has been with a light person.

DR. SHIRLEY: I think that is true. A man in the Chemical Section yesterday morning mentioned that it was a rule in his company not to employ either blond-headed or red-headed men. I think undoubtedly he struck something which the rest of us have left out.

CHAIRMAN HUNGERFORD: This is not confined particularly to benzol. There are other things, such as carbon tetrachloride, which are not poisonous, but certainly cause inconvenience to employees. We use carbon tetrachloride to reduce the fire hazard, and I have personally had trouble with carbon tetrachloride causing nausea, especially with female labor. This is not in reference to solvents, but in reference to ventilation of sulphuric acid fumes, how does that compare with the ventilation for solvent such as benzol?

MR. GUMAER: The more toxic the material the more careful you have to be. With benzol you can take a good deep breath of it. If you take one it won't hurt you, and you can use quite a high concentration for a time. The damage comes from constantly breathing it. With sulphuric acid nobody wants to get one whiff of it, so you have to be very careful with materials of that nature.

P. M. MARTENS (Industrial Commission of Ohio, Columbus, O.): I wonder whether the members present who use benzol as a solvent for the spray gun in painting the tires have any bad effects? Have they any difficulty in removing the fumes from the room?

CHAIRMAN HUNGERFORD: We did, and couldn't do anything about it, so we eliminated benzol.

MR. MARTENS: What did you substitute?

CHAIRMAN HUNGERFORD: Gasoline.

MR. MARTENS: Does it work?

CHAIRMAN HUNGERFORD: Yes, but you have to keep your paint warm .

New Glyco Products

THE esterification of poly alkyl glycols with oleic and stearic acids has produced two new and useful products. The resultant products, diglycol oleate and diglycol stearate are now being produced commercially in this country by the Glyco Products Company, Inc., Bush Terminal, Brooklyn, N. Y.

Diglycol oleate is a brown oily liquid having a marked odor. It is insoluble in water but soluble in alcohol, esters and hydrocarbons. It acts as a softener for rubber, resins and varnish gums. It is a liquid soap which is permanently non-alkaline and therefore will not affect delicate colors and fibres.

Diglycol stearate is an almost white wax-like solid melting at 58° C.. It is somewhat soluble in cold alcohol and hydrocarbons and very soluble when heated above its melting point. It is useful as an emulsifying agent which also is free from alkalies and amines. It dispersed in water heated to 60° C. or over. A 3 per cent dispersion gives a very viscous milky stable fluid. A 10 per cent dispersion gives a soft white cream or paste.

Emulsions made with these diglycol esters may be used on cotton, wool, rayon, paper, leather, etc., for lubrication, flexibility and lustre.

Transparent Rubber Goods

WITH the price of rubber almost on a par with that of the cheapest fillers, it is possible now to produce economically many special items in transparent and translucent effects that have a very distinct sales appeal. Such items may be produced in colors, as well as in the natural rubber color. One method of producing this type of goods is to use a very small percentage of specially selected zinc oxide.—R. R. Olin Laboratories, Akron, Ohio.

EDITORIAL COMMENT

The Automobile Show

THE very encouraging success of the National Automobile Show, held in New York the week of January 9, has not only stimulated the hopes of the automobile manufacturers as to the prospects for the coming year in automobile sales but it presages well for the rubber tire manufacturing industry. In this era of depression and industrial uncertainty this news of peak attendance and record sales at the Show comes as an agreeable surprise and goes far to dissipate any pessimistic views of the ultimate outlook for 1932.

Then again, taking into consideration the temper of the times, the Show was a real event. In the elaborateness of models, in the artistry of design and in the general luxuriousness of appointments, the cars displayed were a real tribute to American automobile construction. The Show demonstrated that the automotive industry had not lost its grip, that the inventiveness and ingenuity of American mechanics had not slackened and that the usual debilitating effects of depressed economic conditions had not disturbed America's foremost industry.

Further consolation can be enjoyed by the rubber industry in the knowledge of the fact that rubber as a commodity has received such great attention from automotive engineers. Practically every car in the Show featured some rubber in an important new development in body or motor construction and rubber was used as a main talking point in many sales demonstrations.

On the whole the Show should be a source of great encouragement to the rubber industry.

Crude Rubber Consumption

RUBBER manufacturers in the United States during 1931 consumed only 348,986 long tons of crude rubber, the lowest since 1924. The absorption in 1930 was only a little higher, however, and totaled only 375,980 tons, but compared with the peak year of 1929, when the nation used 469,800 tons, the drop is a severe one. Whether we can look for a resumption of consumption on such a high scale as 1929 within a reasonable space of years is problematical. Aside from the reduction in industrial activity, growing out of the economic depression and the readjustments in merchandising practices, there are a number of factors which have injected themselves into the situation and which will tend to hold down the huge production schedules to which the industry was accustomed in 1929. Custom barriers have been thrown up in many foreign markets to obstruct exports of rubber goods. American manufacturers have branched out into foreign fields and established factories to supply local and surrounding foreign markets which used to be supplied by products from our own rubber factories. It is significant in this connection, that while American consumption of crude rubber dropped in 1931, the absorption abroad is expected to actually exceed the previous year's figure.

It is doubtful, therefore, and hardly to be expected, that any real approach to the 1929 consumption can be reached for some years. The industry has new conditions to face and must reconcile itself with production schedules worked out on a readjusted basis.

Shorter Hours—More Buying Power

THIS unique idea, as expressed above, was the subject of a recent article by William Green, president of the American Federation of Labor, in the current issue of *Credit Executive*. He calls attention to the fact that the rate of technical progress and increasing substitution of mechanical processes for manual labor has brought about a situation where labor must be rotated in order to give the maximum number of people employment and that at the same time this would mean a considerable amount of leisure time to the workers. But he also points out that leisure time, spent with an adequate wage income means the possibility of a richer life and a higher standard of living. To quote him briefly, he says:

"A job is necessary to a wage earner as a source of the income with which to get the necessaries of life. It is necessary to business that wage earners have jobs in order that they may buy the things business must sell.

"Would it not be well, therefore, to go to the heart of this problem and plan for conservation of jobs? As mechanical power and machinery make it possible to do work in less time, the work week should be shortened. At the present time if all those who need jobs were given employment, the number of weekly work hours for all would be thirty-five.

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Representatives in all the rubber centers of the United States, Canada, England, France, Germany and the Middle East.

The Rubber Industry's CURRENT NEWS

Financial—Personals—New Rubber Products—
Building Operations—Manufacturing—Exports

GOODYEAR DEFEATED IN OVERMAN PATENT SUIT

Holding the patent of the Overman Cushion Tire Company of New York to be valid, Judge Paul Jones in the United States District Court at Cleveland, O., handed down an opinion on January 12 finding the Goodyear Tire & Rubber Company guilty of patent infringement and ordered an accounting and payment of damages. The suit was based upon the manufacture by Goodyear of its "Pneumatic Cushion" and "Super-Pneumatic Cushion" truck tires by a method which Overman claimed to be an infringement upon a patent held by Max Cyrus Overman, president of the plaintiff company.

The original bill of complaint filed by the Overman company estimated that it had been damaged to the extent of $500,000. The judgment, however, was based on the validity of the patents, and a master will determine the amount of damages at a later date.

Attorneys for Goodyear indicated that they will appeal the case to the Circuit Court of Appeals at Cincinnati, O.

NEW LABORATORY OPENED BY IMPERIAL OIL & GAS

The Imperial Oil & Gas Products Company, Pittsburgh, Pa., manufacturer of carbon gas blacks, reports the completion of its new laboratory at its factory at Sterlington, La. This new laboratory, built exclusively for the testing of carbon black in rubber compounds, is fully equipped for the latest methods of rubber testing.

R. W. Sanford, formerly chemist with the B. F. Goodrich Company at Akron, is in charge of the laboratory and will supervise all tests in furtherance of the company's program of technical development as regards the manufacturing and use of carbon black in rubber.

General Fleet in California

Part of the tire testing fleet of the General Tire & Rubber Company is now at San Bernardino and the Lower Valley in Southern California for the winter. Until late May these test cars will average 105,000 miles each month and consume about 500 gallons of gasoline every day in testing tires.

Norman Fuchs is in charge of test car operations, and Don Moriarty is in charge of the fleet in the field.

Rubber Exhibits at Boat Show

The New York Motor Boat Show opened at the Grand Central Palace, New York City, on January 22 and will continue until January 30. The B. F. Goodrich Company is exhibiting its rubber bearings, and there are several other rubber products featured among the displays.

New Goodyear Syracuse Unit

The Goodyear Tire & Rubber Company has bought property at the corner of East Water and South Townsend Street, Syracuse, N. Y., as a site for a $400,000 new four-story headquarters for central New York State. Work has been started on the razing of the present buildings on the property.

Seiberling Letter Contest

The Seiberling Rubber Company will award 104 cash prizes for the best letters from motorists describing the new Seiberling air-cooled tire. The first four prizes are $1,000, $500, $250, and $100, respectively, and there are 100 prizes of $10 each. Letters are to be forwarded to local Seiberling dealers, from whom contest blanks may be obtained, by February 20.

Spalding Has $1,011,266 Loss

A. G. Spalding & Brothers, manufacturers of rubber and other sporting goods, report for the year ended October 31, 1931, a net loss of $1,011,266 after depreciation, interest, federal taxes and provision for depreciation of foreign exchange. This compares with a net profit in the preceding fiscal year of $1,635,484, equal after preferred dividends to $3.74 a share on 349,110 no-par shares of common stock.

WARM WEATHER CLOSES GOODRICH FOOTWEAR UNIT

The unseasonably warm and comparatively dry winter weather that has prevailed throughout the country has resulted in the B. F. Goodrich Company closing down the Hood Rubber heavy footwear department at Watertown, Mass., for four weeks beginning January 16. Arctics, rubber boots and so-called snow articles are the products affected.

The curtailment will involve about 40 per cent of the Hood plant's manufacturing capacity and from 400 to 500 of the total of 3,200 employes.

MASSILLON RUBBER CO. SEES GOOD PROSPECTS

Business of the Massillon Rubber Company, manufacturer of rubber gloves and surgical rubber goods at Massillon, O., was as good during 1931 as in 1930, stockholders were told by the officers of the company at their annual meeting January 13. Although operations slowed down the past month, indications for 1932 are good and an increase in business already has been noted.

The present board of directors was re-elected. Members are J. G. Lester, Robert R. Hess, C. E. Schworm, J. Fred Tschan, Albert Geis, George L. Geis, Harry V. Ress, Benjamin J. Groff and H. Frank Boerner.

Following the stockholders meeting, directors organized and named Mr. Lester, president and general manager, Mr. Hess, vice president, H. P. Croxton, secretary-treasurer, Miss Elizabeth Becker, assistant secretary and Mr. Boerner, superintendent.

NEW COMPANY FORMED TO SELL RUBBER MACHINERY

Organization of the Patterson Engineering Corporation to design, manufacture and sell specialized and standard machinery for the rubber, plastics and other industries was announced this month. The new firm will be affiliated with the Patterson Foundry & Machine Company, East Liverpool, O., which will have charge of all manufacturing.

Officers of the Patterson Engineering Corporation are R. L. Cawood, president; P. E. Welton, vice-president; and R. B. Koontz, secretary and treasurer. Mr. Cawood is president of the Patterson Foundry & Machine Company, while Mr. Welton has been well known in the rubber industry as a consulting engineer and designer of machinery.

Mr. Koontz is particularly well known throughout the rubber industry for his long association with the Adamson Machine Company. He began his connection with Alexander Adamson, founder of that firm, in 1902, was elected secretary-treasurer upon its incorporation in 1909, and became president and general manager after the death of Mr. Adamson in March, 1929, holding that position until a year ago. Between 1893 and 1902 he had been associated with the B. F. Goodrich Company, the Palmer Pneumatic Tire Company and the E. & H. Densmore Company.

The Patterson Engineering Corporation has established offices at 414 United Building, Akron, O.

RUBBER DIVISION NOW IN NEW COMMERCE BUILDING

The Rubber Division of the Bureau of Foreign and Domestic Commerce moved into the new Department of Commerce Building at Fourteenth Street and Pennsylvania Avenue Washington, D. C., on January 4. The new seven-story structure, covering three full city blocks, will permit the concentration under one roof of the various units of the Department of Commerce previously housed in 13 different buildings.

The contact maintained by the Rubber Division with other sections of the Department of Commerce has been simplified by the concentration in one building. Trade representatives visiting Washington can now, through the Division, be placed in quick communication with the Petroleum Economics Division of the Bureau of Mines, which has jurisdiction over national gasoline consumption statistics, and the Automotive Division of the Bureau of Foreign and Domestic Commerce while formerly it would have been necessary to visit three separate buildings to make such contacts.

The Rubber Division has increased its floor space from 757 to 1,120 square feet, relieving the former overcrowded conditions without, however, providing any excess space. The new building has excellent facilities for business conferences, lack of which was formerly a serious handicap, and trade groups are invited to use these facilities by holding occasional meetings at Washington. The Rubber Division points out that its personnel—nine in number—is unable to publish all information received from foreign sources and suggests that representatives of the industry would find it of advantage to visit the Division offices when in Washington.

REGIONAL MEETING HELD BY MISHAWAKA SALESMEN

A regional sales meeting for salesmen of the Mishawaka Rubber & Woolen Manufacturing Company, Mishawaka, Ind., was held at the Deshler Wallick Hotel, Columbus, O., on January 16. The company's salesmen for Ohio, Pennsylvania, West Virginia, Indiana and Maryland attended the session.

Factory representatives attending the meeting included E. J. W. Fink, president and general manager; V. F. Ludwig, manager of sales; G. D. Babcock, assistant manager of sales; C. E. Clark, manager of salesmen, and E. W. Spieser and George A. Schmitt, special sales representatives.

Prior to this year the company's annual school, attended by all of its salesmen, has been held at the factory in Mishawaka, Ind. This year regional meetings are being held in Columbus, Salt Lake City, Utah, Des Moines, Iowa, St. Louis, Mo., Louisville, Ky., Mishawaka, Ind., Reading, Pa., Richmond, Va., and Brattleboro, Vt.

Fred P. Sher

Fred Paul Sher, treasurer of the Belmont Packing & Rubber Company, Philadelphia, Pa., died on January 2.

Charles N. Candee

Charles Newton Candee, president of Gutta Percha & Rubber, Ltd., Toronto, Ont., died suddenly at that city on January 13. He was 75 years of age.

Born in Rochester, N. Y., Mr. Candee had resided in Toronto since 1886 and had devoted his entire business career to the rubber industry. He originally went to Toronto to become assistant manager of the Gutta Percha & Rubber Manufacturing Company. In 1913 he became vice-president of the reorganized company and three years later became its president and managing director. In 1928, Mr. Candee surrendered his managerial duties, but retained the presidency until his death.

MOHAWK RUBBER CO. TO MODIFY BOND PAYMENTS

The Mohawk Rubber Company is notifying stockholders that at the annual meeting February 8 preferred shareholders will be asked to ratify an agreement between the company and bankers providing for modification of bond payment and extension of final maturities of bonds and bank indebtedness.

The company has made all bond payments due for 1931, but states it is agreed that immediate future maturities are heavier than the company should be required to pay under present conditions. Bankers and directors have also agreed that an extension of present bank indebtedness is desirable.

In 1931 bond payments were $150,000. By the agreement 1932 minimum payment will be $50,000, for 1933 $75,000, and thereafter $100,000 a year until 1938. Mohawk has $368,000 debentures maturing in 1932 and 1933.

DIESEL ENGINES USED ON GOODYEAR AIRSHIP

The successful application of Diesel engines to lighter-than-air craft was announced this month after the completion of a round trip flight from Akron to Detroit by the Diesel-powered airship Defender of the Goodyear Tire & Rubber Company. Two Diesel motors of 225-horse power were furnished by the Packard Motor Car Company to be mounted on outriggers outside the control car of the largest Goodyear blimp, and the test flight proved satisfactory in every respect. The cruising speed of the ship with gasoline motors is around 42 miles an hour, but with the twin Diesels the Defender was stepped up to 55 miles without loss of fuel economy.

"With the use of non-inflammable helium as a lifting gas and heavy oil burning engines for propulsion," said P. W. Litchfield, president of the Goodyear company, "the last fire hazard in airship operations has been removed. The significance of the demonstration lies in the possibility of using heavy oil engines in full size rigid or Zeppelin types such as the U. S. S. Akron and future commercial airships. Dr. Hugo Eckener, commander of the Graf Zeppelin, is now directing the designing of Maybach-Diesel motors for his new ship, the LZ-127, which will be almost twice the size of the famous Graf."

GENERAL TIRE & RUBBER CUTS COMMON DIVIDENDS

The General Tire & Rubber Company joined the ranks of other rubber companies in reducing common stock dividends when its directors at a meeting January 13 declared a quarterly dividend of 25 cents a share instead of the 75 cents long paid. This dividend, which is payable February 1 to stockholders of record at the close of business on January 20, reduces the annual rate from $3 a share to $1 a share.

As previously reported, the General Tire & Rubber Company had sales amounting to $20,822.000 during its fiscal year ended November 30, 1931, as compared to a total of $24,072,000 in the previous fiscal year. Due to the fact that the annual audit has not as yet been completed, the company's profit for the year has not been released for publication.

Buys Trump Brothers Rubber Co.

Rinkie Reiss, operator of a small rubber factory at Cuyahoga Falls, O., and P. P. Crisp, an executive of the Firestone Tire & Rubber Company, are reported to have purchased the Trump Brothers Rubber Company, Akron, O., which was recently placed in receivership. The Trump Brothers plant manufactures tires and mechanical goods and normally employs several hundred persons. The plant operated by Mr. Reiss at Cuyahoga Falls will be merged with the Akron factory.

RUBBER COMPANY STOCKS JOIN IN MARKET RISE

Most rubber company stock issues rallied during the past fortnight in sympathy with the gains shown by securities of other industries. Goodyear preferred was particularly strong, advancing from 43 on January 6 to 55⅝ on January 19. Other issues showing gains in the two weeks were U. S. Rubber, Firestone and Kelly-Springfield.

Closing prices of the stocks of the principal companies in the rubber industries on January 19, compared with the close of January 6 and with the high and low levels established during 1931, are shown in the following table:

	Last Price		—1931—	
	Jan. 19	Jan. 6	High	Low
Aetna	—	—	5	2
American Hard Rubber	—	—	35¼	30
Faultless	—	—	37	24⅜
Firestone	—	13⅜	21½	12⅞
do. 6% pfd.	53½	50¾	66⅛	49⅝
Fisk	¼	¼	⅞	¼
do. 1st pfd.	—	¾	3	⅓
General	—	—	140	50
do. pfd.	—	—	87½	64⅞
Goodrich	4⅝	4½	20⅞	3⅝
do. pfd.	—	12	68	10
Goodyear	15¼	15	52¾	13¾
do. 1st pfd.	55⅝	43	91	35
India	—	—	13½	6
Intercontinental	⅞	—	4½	½
Kelly-Springfield	1¼	1	8½	¾
do. 6% pfd.	—	20	45	10
Lee	2	2	4¾	1⅞
Mohawk	—	—	8	1¾
do. pfd.	—	—	35	25
Norwalk	1	—	2	½
Pirelli	—	—	39¾	26½
Raybestos-Manhattan	—	10	29½	8½
Seiberling	—	4	10¾	3⅝
do. pfd.	—	20	50	32
Thermoid	—	—	9	1½
U. S. Rubber	4⅝	4½	20⅝	3½
do. pfd.	—	9¼	36⅛	6⅝

· Rubber News Around the World ·

EXCHANGE SALES FELL 4.1 PER CENT IN 1931

Rubber transactions during 1931 on the Rubber Exchange of New York, Inc., amounted to 28,366 contracts, representing 219,430 tons as compared with a volume of 228,995 tons, transacted during 1930, a reduction of 4.1 per cent, it is announced by the Exchange.

In view of the unsatisfactory state of business and industry generally last year the activity in rubber futures is regarded by the Exchange members as gratifying. By contrast, the rubber manufacturing industry in the United States is estimated to have curtailed factory operations anywhere from 5 per cent to 20 per cent from the previous year, while the consumption of the commodity will probably show a loss of about 8 per cent.

Rubber prices during 1931 embarked upon a downward movement which culminated in a new all-time low price of 4.10 cents per pound, that price having been attained early in December on the old "A" contract delivery for that month, while the No. 1 Standard sold down to 4.16 cents. The year's high price was reached during January, when the January delivery, Standard contract terms, sold at 8.50 cents per pound.

The trading on the Exchange last year represented wide trade participation, its membership including importers, dealers and brokers in the commodity as well as manufacturers, while so-called outside or investment interest in rubber, conducted for a large clientele of security and commodity houses which also make up its membership, added considerably to the volume. The Exchange again demonstrated its growing utility to the rubber trading as a medium for hedging operations, whereby its facilities practically safeguard merchants against losses growing out of forward buying of rubber from the Far East, or from fluctuations in the exchange rate.

SOLID TIRES ARE NOW PROHIBITED IN ITALY

According to royal decrees of December 2, 1928, and July 9, 1931, solid tires will not be permitted on motor vehicles in Italy after January 1, 1932. After that date only such vehicles will be licensed as are equipped with pneumatic or semipneumatic tires.

A ministerial decree of November 21, 1931, defines the term "semipneumatic tires" for the purposes of the decrees requiring the use of pneumatic or semipneumatic tires in Italy after January 1, 1932, as follows:

A semipneumatic tire is one which has one or more continuous longitudinal internal spaces, opening to the outside of the tire or not, of a depth not less than 25 per cent of the depth of the tire, and in no case of a depth less than 18 millimeters, and of a minimum breadth of two-thirds of its depth, and which has at least one such space in a tire of 210 millimeters in width and at least one more such space for each additional 110 millimeters of width.

Under the maximum working load for each wheel the resulting average unit pressure on the part of the tire touching a flat horizontal surface must not exceed 10 kilograms per square centimeter, and must not exceed 13 kilograms per square centimeter under double that maximum working load.

Each tire must carry an indication of the maximum load under which it would meet the above conditions.

Each type of semipneumatic tire offered for use after January 1, 1932, must, on the responsibility of its producer (or importer), be submitted to the Office of the Inspector General of Railroads, Tramways, and Motor Vehicles of the Ministry of Communications for its approval.

RUBBER FREIGHT RATES REDUCED BY SHIP LINES

A cable received from Singapore advises The Rubber Exchange of New York, Inc., that the Shipping Conference has reduced freight rates for crude rubber to New York. The cut amounts to $3 gold per ton, or from $11.50 to $8.50, effective for six months from the first of January, 1932.

Rates on Dutch-grown rubber also have been slashed. Another advice from Batavia, Java, Dutch East Indies, states that the freight charge has been lowered from 20½ guilders to 14½ guilders per cubic meter. The new rate will remain in effect until June.

I. R. I. PLANS MEETINGS WITH INTERESTING PAPERS

Two technical papers are scheduled for the meeting of the West of England Section of the Institution of the Rubber Industry on February 3 at the George Hotel, Trowbridge. W. W. Knight will discuss "Developments of Modern Motor Tire Fabrics," and C. H. Birkitt will describe "The Laying of Rubber Flooring." Members of the Midland Section will meet February 4 together with the Institute of Automobile Engineers at the Grand Hotel, Birmingham, to hear George H. Lanchester speak on "The Uses of Rubber in Automobiles."

On February 5 the Manchester and District Section will hold a joint meeting with the Society of Chemical Industry at the Engineers' Club, Manchester, at which time F. D. Miles will present a paper on "The X-ray Examination of Sub-Crystalline Materials."

H. C. Young will address the London and District Section February 8 at the First Avenue Hotel, London, on "The Vibration of Buildings and Possibility of Rubber as a Useful Shock Absorber."

TIRE FACTORY PLANNED FOR NEW ZEALAND CITY

Business men of Christchurch, New Zealand, are planning a company for the manufacture of automobile tires and general rubber goods. It is claimed that Christchurch, because of its ample water supply, cheap electricity, and comparatively low land costs, is particularly suited to the establishment of a rubber mill. A leading tire company would supply the technique for the manufacturing process, the mill manager, and instructors. This particular company is said to be doing a similar work for the Soviet Government.

The promoters desire a license from the government to cater for at least half of New Zealand's normal consumption of tires and rubber goods for a period of from five to seven years, and are willing to submit to some form of price control by the government in return for the privilege. The promoters contend that the New Zealand consumption of rubber goods has now reached such a volume that for any local company to start in the business would only be to invite disastrous competition from overseas manufacturers. It is essential, they say, that as much protection should be given to New Zealand tire manufacture as is today given in New Zealand to the British tire manufacturer against foreign competition, and this duty should be on a poundage basis. All machinery required for the manufacture of tires and general rubber goods up to the value of £75,000 should be admitted to New Zealand free of duty. The projected company would have a capital of £200,000 to £250,000 ($973,300 to $1,216,625) and the mill would have a minimum capacity of about 800 tires a day or 200,000 a year. This would cater for half of New Zealand's present tire consumption, and find employment for about 500 men, it is calculated.

New Rubber Flooring

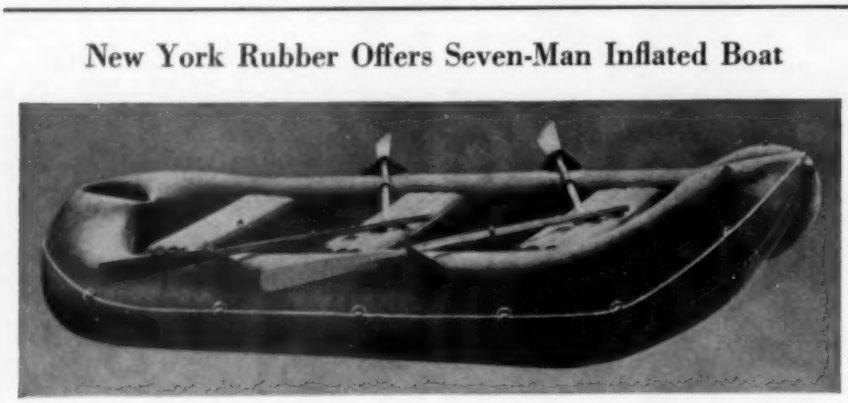
Over 200 square yards of floor space at the Masonic Hall, Singapore, has been covered with a rubber flooring laid in the manner of cement. The existing concrete floor was first "washed" with a thin latex solution, treated with an anti-coagulent to thoroughly waterproof the surface, and then coated with the rubber flooring, a compound of ordinary latex with other materials developed by Parry Davis, the inventor. A process of cold-heat vulcanization was used, and the whole operation is reported to have cost only $2 (Straits) a square yard.

Toronto Goodyear Output Up

The plant of the Goodyear Tire & Rubber Company of Canada, Ltd., at New Toronto, Ont., has returned to a 24-hour day five-day week schedule, an increase of 25 per cent in operations. D. J. McCarthy, sales manager, states that business in the final quarter of 1931 equaled the record quarter of 1929, and he predicts an active year for motor car and accessory production.

Rubber Goods and Specialties

New York Rubber Offers Seven-Man Inflated Boat



DEVELOPMENT of an inflated Airubber boat twelve feet in length and large enough to carry seven men is announced by the New York Rubber Corporation, Beacon, N. Y. This boat employs the newly perfected inflated seats, which are made in the characteristic fashion of the Airubber camp mattress, and also a removable Airubber inflated floor, which stiffens the boat and acts as an emergency safety float. The company also makes smaller rubber boats in a variety of sizes.

Firestone Basket Weave Oxford

The new Basket Weave Oxford of the Firestone Footwear Company, 141 Brookline Avenue, Boston, Mass., carries a vamp of special mesh material which is reinforced

with duck underneath, at the edges, making a cool, comfortable shoe for general wear in the summer. It has an inside nett toe cap, Solese insole and cushion heel which protects the foot from jolts and jars.

Fisk DeLuxe Bicycle Tire

The DeLuxe bicycle tire recently introduced by the Fisk Rubber Company, Chicopee Falls, Mass., has a heavy black non-

blooming tread and is made of three plies of bicycle fabric. It has a red laminated tube, built up in three layers from thin sheets of tube stock, which is said to eliminate any possible tube weakness. The tread is calendered and correctly cut and shaped to fit the mold. It is so designed that when the brake is applied the broken edge of the center bar, the cross bars and the inner part of the arrow-head design come into play, materially aiding in stopping the wheel.

Golfer Rain Jacket

The Golfer Rain Jacket, offered by the Chicago Rubber Clothing Company, Racine, Wis., is light and waterproof and makes not only an excellent protection for golfing but also for fishing, when worn with waders. It is made of a good quality of olive tan rubber coating on specially selected fancy plaid back material, the rubber side out. It is ventilated under the arms, has elastic at the cuffs, and has all seams sewn, cemented and strapped. The talon fastener separates at the bottom, as shown in the il-

lustration, enabling the wearer to put the jacket on and take it off as with an ordinary coat.

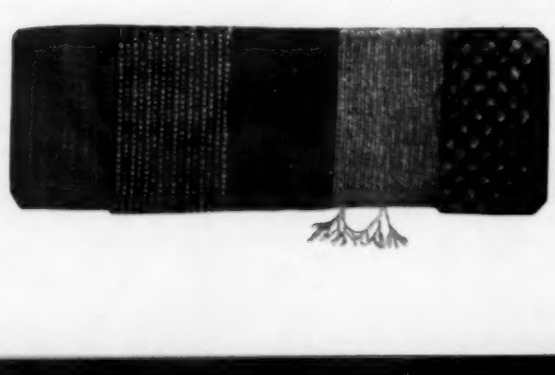
Alligator Water Toy

As a companion to its Frog water toy, the Miller Rubber Products Company, Akron, O., offers its Alligator water toy. This is made of green and white rubber—

white for the stomach—and is a one-piece toy without bladder, large enough to float an adult. The centre is cut out so that the toy may be slipped under the arms of the bather. A third water toy of the same type in the company's line is the Turtle float.

Lima Raw Cord Sole Has Unique Construction

As its latest addition to its line of Non-Slip Gro-Cord soles, the Lima Cord Sole & Heel Company, Lima, O., has introduced the Raw Cord Munson Service sole, shown at the right.



Made throughout of cord tire cords embedded upright in live rubber, it presents a distinct novelty in its construction, the details of which are shown in the illustration at the left.

Oak's New Owl Balloon

A new item, the Owl balloon, is announced by the Oak Rubber Company, Ravenna, O. This is the latest addition to the series of animal balloons recently inaugurated with the Kat and the Scotty as the first two numbers. These balloons have

upstanding ears and have the animal faces printed on both sides of the balloon. The effect is unique and has already resulted in giving this line a widespread popularity.

Universal Glass Washer

Following its successful introduction into the greater Boston market during the past few years, the Universal glass washer, manufactured by the Brockton Universal Machine Company, Brockton, Mass., is about to be made available generally throughout the country for the use of restaurants and hotels. The brushes used are of pure red

gum rubber, chemically treated to withstand and resist grease and hot water, the manufacturer having found this material far superior to the fibre and bristle brushes previously experimented with. The brushes turn as pressure is exerted at the top, forcing the spiral down into the base and giving three revolutions of the brushes. The rubber brushes last long enough to wash 40,000 glasses or from six weeks in a busy restaurant to four months in ordinary soda fountain use. They are interchangeable when worn out.

Names in the News

ARNOLD H. SMITH, who has for the last two years been assisting the Graesser-Monsanto Chemical Works, now the Monsanto Chemical Works, Ltd., in the development and sales of products of the Rubber Service Laboratories Company, spent the past several weeks in Akron, St. Louis, Nitro, W. Va., and other centres in order to correlate the development work of the different divisions of the parent organization. Mr. Smith makes his headquarters in London but several times a year visits the European rubber factories. He also has charge of the company's rubber laboratory at the plant located in Ruabon, Wales.

C. M. KEYS, director of the B. F. Goodrich Company, has resigned his posts as chairman of the executive committee of the Curtiss-Wright Corporation, as chairman of the boards of Transcontinental & Western Air, Inc., and North American Aviation, Inc., and as director of several subsidiary aviation companies.

ALBERT H. STYRON, of Birmingham, Ala., has been appointed district manager of the Thermoid Rubber Company, Trenton, N. J., his territory covering Alabama, Mississippi, and Tennessee. He has been connected with Thermoid for the past four years.

WILLIAM STEPHENS, general superintendent of the Goodyear Tire & Rubber Company, is recuperating at City Hospital, Akron, O., from a fractured left arm, sustained when he slipped and fell when leaving his hotel after a meeting of the Rubber Manufacturers Association on January 11. The injury was at first thought to be only a bruise, but a fracture was found and he entered the hospital on January 14.

T. G. GRAHAM, vice-president of the B. F. Goodrich Company, spoke before members of the American Management Association at Dayton, O., on January 19, his talk being on the proper relation between reduction and sales in American industry. P. J. Dildine, manager of the Goodrich factory standards department, was in charge of the sessions at Dayton, which were devoted to shop methods and production.

W. C. YOUNG, head of the aeronautical sales department of the Goodyear Tire & Rubber Company, spoke before members of the Eskimo Club at the North Hill Methodist Church, Akron, O., on January 13. His subject was "Air Transportation."

W. F. YOUNG, head of aeronautic sales for the Pacific B. F. Goodrich Company, and his brother, COLONEL CLARENCE M. YOUNG, Assistant Secretary of Commerce for aviation, arrived in Akron January 13 by airplane from Miami, Fla., where they attended the annual winter air show.

DR. LOUIS SCHWARTZ, senior surgeon of the United States Public Health Service, addressed the first meeting this year of the employes of the Goodyear Tire & Rubber Company, held January 9 at the Goodyear Theatre in Akron.

CLARENCE FOX, purchasing agent of the Goodyear-Zeppelin Corporation, spoke before the members of the Rotary Club of Ravenna, O., on January 5. He discussed lighter-than-air transportation and cited the plans of his organization for regular trans-Atlantic passenger flights.

DR. ENOCH KARRER, professor of physics at Western Reserve University, and former physicist of the B. F. Goodrich Company, has returned to Akron after delivering a paper on the structure of rubber before the members of the American Association for the Advancement of Science at New Orleans, La.

J. T. KIDNEY, manager of the employes service division of the Goodyear Tire & Rubber Company, spoke on the subject of industrial safety before the members of the Medina Foremen's Club at Medina, O., on January 6.

J. R. SWEETMAN, specialist in resins and rubber technology, and recently chief chemist for the Fiberfraks Corporation, Bridgeport, Conn., sailed for France recently to serve as chemical engineer for a large corporation there.

DR. H. L. FISHER, of the United States Rubber Company, spoke before the members of the Virginia Blue Ridge Section of the American Chemical Society at Roanoke, Va., on January 23. His subject was "The Technology and Chemistry of Rubber."

ROBERT J. GEIS, sales promotion manager of the New York branch of the B. F. Goodrich Rubber Company, has been named district advertising manager for Goodrich in New York. He succeeds J. D. Kattenhorn, who resigned to accept a position with the Travelers Insurance Company.

RAUCH AND SULLIVAN ARE PUT ON GOODRICH BOARD

R. S. Rauch, former vice-president of the Philadelphia Rubber Works Company, and Corliss Sullivan, chairman of the board of the Central United National Bank, Cleveland, O., were appointed as members of the board of directors of the B. F. Goodrich Company at a meeting of company directors at New York City on January 12.

Mr. Rauch and Mr. Sullivan fill places on the board formerly occupied by Vice-President T. G. Graham and the late Frank H. Mason. Mr. Rauch is to serve during the term expiring in 1933, and Mr. Sullivan for the term ending in 1934.

BOWMANVILLE UNIT WINS GOODYEAR SAFETY PRIZE

"In all the record of human progress I believe nothing more important has been done than the extent and rapidity of the changes wrought to safeguard employees of industrial plants from accidents," said C. C. Slusser, vice-president and factory manager of the Goodyear Tire & Rubber Company, in announcing the presentation of the Slusser Safety Award to the company's factory in Bowmanville, Canada, that unit having made the best safety record for 1931 in an inter-plant safety contest sponsored by Goodyear.

Eight of the company's plants participated, and a report compiled for the year shows the number of accidents per 1,000 employees, Bowmanville leading with a ratio of only three. New Toronto's record was four; Gadsden, Ala., eight; Los Angeles, Cal., nine; Sydney, Australia, 12; Wolverhampton, England, 12; Akron, 40; Buenos Aires, Argentina, 133. The list of accidents comprises all injuries, minor and otherwise, causing any loss of time.

Not one accident occurred in the Bowmanville plant in the last 10 months of 1931, none in seven months at New Toronto and Los Angeles, none in eight months at Gadsden, and none in the last four months at Wolverhampton.

The decrease in accidents in 1931, compared with the 1930, record, was 88 per cent at Bowmanville, 75 at New Toronto, 71 at Sydney, 59 at Wolverhampton, 47 at Gadsden, 26 at Los Angeles and 19 at Akron.

"The plant at Buenos Aires has been in operation only a year," said Mr. Slusser, "and the vast majority of workers there had little or no previous experience in any type of factory, therefore did not appreciate the care that should be exercised in handling mill machinery. That situation naturally figured conspicuously in the South American factory's showing, but I feel sure a marked improvement will be noted in the current year."

CHRYSLER WILL PROTECT RUBBER MOUNTING NAME

The United States District Court at Los Angeles has just granted the Chrysler Corporation a preliminary injunction against Roberts Devices, Ltd., of Los Angeles, restraining use of the trade mark "Floating Power." "Floating Power" is the name of the new engine mounting developed by Chrysler engineers, and was first used this year on the company's four-cylinder Plymouth car.

The bill of complaint was filed by Chrysler Corporation showing that Roberts Devices, Ltd., was engaged in manufacturing and selling a motor mounting for replacement purposes on competing makes of cars. This motor mounting, while different in structure from the Chrysler product, was designated by Roberts Devices, Ltd., as "Floating Power." Chrysler complained that the trade mark "Floating Power" had been originated by it and that it had spent a large sum of money in advertising the name.

CLASSIFIED ADVERTISING

Five cents a word, minimum charge $2.00, payable in advance.
Address replies to Box Numbers.
THE RUBBER AGE
250 West 57th St., New York City

HELP WANTED

WANTED—Tire Department Foreman. Must be thoroughly experienced in the most advanced ideas of tire construction. Capable of supervising bead building and stock preparation. Knowledge of air bag building and curing tires advantageous. Must be a hustler and have plenty of initiative. Write fully, stating age, references, and lowest salary acceptable for start. Address Box 648, THE RUBBER AGE.

WANTED—Foreman for department producing auto topping, leatherette, hospital sheeting, and jersey cloth. Must have practical experience in these lines, be capable of assuming full charge of spreading, calendering, curing and finishing, and produce with a minimum of waste. Address Box 651, THE RUBBER AGE.

POSITIONS WANTED

SALES REPRESENTATIVE open to handle line of rubber goods in New York and vicinity. Knows automobile tires, druggist sundries, hosptial supply lines. Willing to develop market for any line or act as plant manager. Address Box 647, THE RUBBER AGE.

EQUIPMENT WANTED

WE ARE in the market for a 66" calender, several individual 60" mills, balloon tire molds, air bag molds, and all equipment necessary for a tire unit. Machines must be in first class condition and you must quote lowest prices. Address Box 649, THE RUBBER AGE.

WANTED—Complete set of balloon tire and air bag molds. Must have modern non-skid design, and be modern in regard to producing a tire along up-to-date ideas of tire engineering. Complete set of blue prints must be furnished and sample of tire from molds if possible. Must be in first-class condition and cheap. Address Box 650, THE RUBBER AGE.

WANTED—To BUY: Steel molds for mechanical rubber goods for bibb washers, fuller balls, tank balls, elbows, force cups, etc. Address Box 652, THE RUBBER AGE.

SURPLUS RAW MATERIALS

WE PURCHASE surplus and discontinued stocks of Chemicals, Pigments, Accelerators, Solvents and Raw Materials, regardless of quality or condition. Send us a complete list of such dead stocks, whereupon we will make you a cash offer.

BARCLAY CHEMICAL COMPANY
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LATE MARKET PRICES

RUBBER—COTTONS AND FABRICS—CHEMICALS

NEW YORK, JANUARY 19, 1932

Crude Rubber

DURING practically the entire fortnight the price of crude rubber held firmly at or above the 4½-cent level, but on January 19 it broke again down to 4⅜ cents. In addition to the low December consumption figures, the market was hit by the realization that the decrease in Malayan shipments last month was due to rubber being withheld for lower freight rates rather than to any cut in production.

Malayan shipments, which dropped to the low total of 35,741 tons during December, will show a material increase during January to around 45,000 tons, it is estimated in trade circles. Exports of crude rubber by Malaya during the first half of the present month amounted to approximately 19,000 tons. A large tonnage of rubber was held back by the Eastern shippers during December pending a reduction in freight rates, it is generally believed in rubber trade circles at New York.

Prices quoted on the New York outside market at the close January 19 follow:

Plantations—			
Ribbed Smoked Sheets—			
Spot-Jan.	.04¼	@	.04⅜
Jan.-Mar.	.04⅛	@	.04½
Apr.-June	—	@	.04⅝
First Latex, crepe spot	.05	@	.05⅛
Amber Crepe, No. 2	—	@	.04¼
Amber Crepe, No. 3	.04⅛	@	.04¼
Amber Crepe, No. 4	—	@	.04⅛
Brown Crepe, Clean thin	.04⅛	@	.04¼
Brown Crepe, rolled	—	@	.03⅞
Liquid Latex, per gal.	.70	@	.80
Paras—			
Up-river, fine	—	@	.05½
Up-river, coarse	Nominal		
Acre Bolivian, fine	.06	@	.06⅛
Caucho Ball, Upper	.03	@	—
Centrals—			
Central scrap	.04	@	—
Esmeraldas	.04	@	—
Balata—			
Block, Ciudad	—	@	.18

LONDON MARKET

Standard Ribbed Smoked Sheets—Buyers			
January	2⅞	@	3d
February	—	@	3d
March	—	@	3d

SINGAPORE MARKET

Standard Ribbed Smoked Sheets—Sellers			
Spot	2⅝	@	2¾d

Daily closing prices and sales on the Rubber Exchange of New York are given in the table below:

Reclaimed Rubber

Reclaimed rubber, like crude rubber, maintained its market position during the course of the past fortnight. The December consumption figures were no more than was to have been expected, and the trade generally feels that with 1931 out of the way it may look forward to better days with increasing consumption and sales. Stocks have been cut down to a minimum, and the industry is ready for recovery. Late price quotations for the various grades of reclaimed rubber were as follows:

High Tensile				
Super-Reclaim Black	lb.	.05½	@	.05¾
High Tensile Red	lb.	.05¼	@	.05½
Shoe				
Unwashed	lb.	.05¼	@	.05½
Washed	lb.	.06	@	.06¼
Tube				
No. 1 (Floating)	lb.	—	@	.06½
No. 2 (Compounded)	lb.	.05	@	.05¼
Tires				
Black	lb.	.04¼	@	.04½
Black, selected tires	lb.	.04½	@	.04¾
Dark Gray		.05	@	.05¼
Light Gray	lb.	.06¼	@	.06½
White	lb.	.05⅝	@	.06
Truck, Heavy Gravity	lb.	.05¾	@	.06½
Truck, Light Gravity	lb.	.05½	@	.05¾
Miscellaneous				
Mechanical blends	lb.	.03¼	@	.03½

Scrap Rubber

Dealers in scrap rubber have not as yet found the new year better than the old, but look forward to improved conditions by spring. Latest prices for the different grades of scrap rubber, which remain practically unchanged, follow:

(Prices to Consumer)

Auto tire peelings	ton	19.00	@	21.00
Mixed auto	ton	6.00	@	8.50
Bicycle tires	ton	5.00	@	6.00
Clean solid truck tires	ton	23.50	@	25.00
Boots and shoes	ton	15.00	@	17.50
Arctics, untrimmed	ton	10.00	@	12.50
Inner tubes, No. 1	lb.	.03¼	@	.03⅝
Inner tubes, No. 2, compounded	lb.	.01⅝	@	.01⅞
Inner Tubes, Red	cwt.	1.40	@	1.50
Air Brake Hose	ton	9.00	@	10.00
Rubber Hose	ton	8.50	@	9.00

Cotton

COTTON price quotations have enjoyed a rise of approximately half a cent during the course of the past two weeks, with the improvement in securities and the plans for general business amelioration acting as the principal factors in the upward trend.

President Hoover's plans for reconstruction and the hope that successful results at the reparations conference will improve European demand have combined to make for a better market sentiment. In addition, it is still hoped that the domestic acreage this year will be reduced by as much as 15 per cent.

High, low and closing prices on the New York Cotton Exchange on January 19 were as follows:

	High	Low Jan. 19	Close	Close Jan. 5
Jan.	6.72	6.61	6.65	6.18
Mar.	6.80	6.71	6.74	6.27
May	6.94	6.85	6.88	6.44

Tire Fabrics

Prices for tire fabrics were firmer during the fortnight in accordance with the rise in raw cotton quotations. The latest prices follow:

(Prices Net at the Mill)

CORD				
Peeler, carded, 23/4/3	lb.	.25½	@	.26
Peeler, carded, 23/5/3	lb.	.24½	@	.25
Peeler, carded, 13/3/3	lb.	.22	@	.22½
Peeler, carded, 15/3/3	lb.	.22½	@	.23
Egyptian, carded, 23/5/3	lb.	.35	@	.36
Egyptian, combed, 23/5/3	lb.	.40	@	.40½
CHAFERS				
Carded, American, 8 oz.	lb.	.23	@	.23½
Carded, American, 10 oz.	lb.	.23	@	.23½
Carded, American, 12 oz.	lb.	.22½	@	.23
Carded, American, 14 oz.	lb.	.20½	@	.21
LENO BREAKER				
Carded, American, 8¼ oz.	lb.	.20	@	.25
Carded, American, 10¼ oz.	lb.	.20	@	.25
SQUARE WOVEN				
Carded, American, 17¼ oz. 23-11 ply	lb.	.24½	@	.25
Carded, American, 17¼ oz. 10-ply	lb.	.20½	@	.21

Sheetings

Changes in price in the sheetings market were only fractional. Current price quotations for the more popular sizes are as follows:

40 inch, 2.50-yard	yd.	—	@	.05⅝
40-inch, 2.85-yard	yd.	.05⅛	@	.05¼
40-inch, 3.15-yard	yd.	—	@	.05⅝
40-inch, 3.60-yard	yd.	—	@	.04¾
40-inch, 3.75-yard	yd.	.04⅛	@	.04¼
40-inch, 4.25-yard	yd.	—	@	.03¾

Ducks

The market for cotton ducks continued to be dull during the last two weeks. Prices showed no change, closing as follows for the different grades:

Belting and Hose	lb.	.18	@	.18½
Enameling	lb.	.18	@	.20
Single filling	lb.	.08	@	.08¼
Double filling	lb.	.09½	@	.09¾

Closing Prices on Rubber Exchange of New York, Inc.

No. 1 Standard Contract of 10 Tons

FROM JANUARY 6 TO JANUARY 19, 1932

		Spot	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Sales
Jan.	6	4.48	4.47	4.53	4.60	4.67	4.72	4.78	4.84	4.90	4.96	5.07	5.15	5.24	70
	7	4.66	4.65	4.69	4.73	4.79	4.85	4.90	4.95	5.01	5.07	5.15	5.23	5.31	63
	8	4.73	4.72	4.76	4.80	4.86	4.92	4.99	5.06	5.12	5.18	5.28	5.36	5.44	70
	9	4.69	4.68	4.72	4.76	4.82	4.88	4.94	5.01	5.08	5.15	5.25	5.33	5.41	41
	11	4.60	4.59	4.64	4.68	4.72	4.75	4.83	4.90	4.96	5.02	5.12	5.20	5.28	9
	12	4.61	4.60	4.64	4.69	4.74	4.80	4.85	4.90	4.96	5.03	5.12	5.20	5.28	6
	13	4.77	4.75	4.81	4.88	4.93	4.98	5.03	5.08	5.16	5.24	5.30	5.37	5.44	110
	14	4.69	4.67	4.73	4.80	4.85	4.90	4.96	5.03	5.11	5.20	5.29	5.36	5.44	37
	15	4.61	4.59	4.62	4.66	4.73	4.80	4.86	4.92	4.99	5.06	5.15	5.25	5.35	121
	16	4.61	4.61	4.65	4.70	4.75	4.81	4.87	4.93	4.99	5.06	5.15	5.25	5.35	34
	18	4.48	4.46	4.50	4.55	4.60	4.66	4.73	4.80	4.86	4.93	5.01	5.10	5.20	52
	19	4.36	4.34	4.39	4.43	4.48	4.54	4.60	4.66	4.72	4.78	4.88	4.96	5.05	158

CHEMICALS

SOME impetus was given to sales of rubber chemicals and compounding ingredients by the increase in rubber factory production schedules that became evident immediately after the first of the year. Greater improvement is expected in coming months, particularly in view of the lowered stocks of tires and other rubber goods in the hands of manufacturers. No important changes in the price structure of rubber chemicals and compounding materials has been noted in recent weeks.

ACCELERATORS

Organic				
A-1	lb.	.24	@	.27
A-5-10	lb.	.33	@	.36
A-7	lb.	.55	@	.59
A-11	lb.	.42	@	.46
A-16	lb.	.57	@	.61
A-19	lb.	.58	@	.62
A-20	lb.	.64	@	.68
A-32	lb.	.80	@	.95
Aldehyde ammonia, crystals	lb.	.65	@	.70
Altax	lb.			
Captax	lb			
Crylene	lb.	.55	@	.65
paste	lb.	.45	@	.55
Di-Ortho-Tolyguanidine	lb.	.42	@	.44½
Diphenylguanidine	lb.	.30	@	.32½
Ethylidene aniline	lb.	.45	@	.47½
Formaldehyde aniline	lb.	.37½	@	.40
Heptene	lb.	.40	@	—
Hexamethylene-tetramine	lb.	.58½	@	.61
Lithex	lb.	.18	@	.20
Methylenedianiline	lb.	.37½	@	.40
Monex	lb.	2.25	@	—
Oxynone	lb.	.68	@	.80
Phenex	lb.	.50	@	.55
R & H 40	lb.	.40	@	.41
R & H 50	lb.	.40	@	.41
R & H 89	lb.	.75	@	.76
R-2	lb.	1.95	@	2.15
Safex	lb.	1.20	@	1.25
SPDX	lb.	.75	@	—
Super-Sulphur No. 1	lb.			
No. 2	lb.			
Tensilac, No. 39	lb.	.40	@	.42½
Tensilac, No. 41	lb.	.50	@	.52½
Thermio F	lb.	.50	@	.55
Thiocarbanilid, drums	lb.	.20	@	.22
TMTT	lb.	3.00	@	3.25
Trimene	lb.	.75	@	—
base	lb.	1.20	@	—
Triphenylguanidine	lb.	.55	@	.60
Tuads	lb.			
Ureka	lb.	.75	@	1.00
Vulcanex	lb.			
Vulcone	lb.			
Vulcanol	lb.			
Z-88-P	lb.	.50	@	.60
Zimate	lb.			
Inorganic				
Lead, sublimed blue	lb.	.08¾	@	—
Lead, white	lb.	.08½	@	.08¾
Litharge, domestic	lb.	.06¾	@	.07
Magnesia, calcined,				
light	per 100 lb.	5.25	@	5.45
heavy	per 100 lb.	3.65	@	3.75

COLORS

Blacks (See Compounding Materials)				
Blues				
Prussian	lb.	.35	@	.36
Ultramarine	lb.	.06	@	.32
Browns				
Sienna, Italian	lb.	.05½	@	.12½
Umber, Turkey	lb.	.04½	@	.07
Greens				
Chrome, light	lb.	.30	@	.32
medium	lb.	.31	@	.33
dark	lb.	.34	@	.36
Chromium Oxide, bbl.	lb.	.34½	@	.35½
Reds				
Antimony				
crimson, 15/17	lb.	.40	@	.44
sulfur, free	lb.	.56	@	.66
golden, 15/17 F.S.	lb.	.20	@	.25
Indian English	lb.	.08	@	.11
Domestic (Maroon)	lb.	.11	@	—
Red oxide, pure	lb.	.10	@	.12
Rub-Er-Red, f.o.b. Easton	lb.	.08¾	@	—
Whites				
Lithopone, Albalith	lb.	.05¼	@	.05¾
Lithopone, Azolith	lb.	.05¼	@	.05¾
Titanium oxide	lb.	.31	@	—
Titanox B	lb.	.06½	@	.07
Titanox C	lb.	.06½	@	.07
Zinc Oxide—American Process				
American Azo:				
ZZZ (lead free)	lb.	.06½	@	.07
ZZ (leaded)	lb.	.06⅝	@	.06⅞
Horsehead Brand:				
Special	lb.	.07	@	.07½
XX Green	lb	.07	@	.07½
XX Red, lead free	lb.	.06½	@	.07
Kadox, black label	lb.	.10⅜	@	.10⅞
blue label	lb.	.09⅜	@	.09⅞
red label	lb.	.08	@	.08⅛
St. Joe, black label	lb.	.06½	@	.07
red label	lb.	.06½	@	.07
Zinc Oxide—French Process				
Anaconda, lead free	lb.	.06½	@	.07
Anaconda, selected lead free	lb.	.07	@	.07½
White seal	lb.	.11⅝	@	.11⅞
Green seal	lb.	.10⅝	@	.10⅞
Red seal	lb.	.09⅝	@	.09⅞
Yellows				
Chrome	lb.	.16¼	@	.17
Ocher, domestic	lb.	.01⅝	@	.02

BLACKS

Arrow "Aerfloted"				
c.l. f.o.b. works, bags	lb.	.03	@	—
c.l. f.o.b. work, cases	lb.	.04½	@	—
less c.l. f.o.b. works	lb.	.05½	@	.07
Bone, powdered	lb.	.05½	@	.12½
Carbon, compressed	lb.	.03	@	.07
uncompressed	lb.	.03	@	.07
"Certified," Cabot				
c.l. f.o.b. works, bags	lb.	.03	@	—
c.l. f.o.b. works, cases	lb.	.04½	@	—
less c.l. f.o.b. works	lb.	.05½	@	.07
"Disperso" f.o.b. La.	lb.	.031	@	.071
f.o.b. Texas	lb.	.03	@	.07
Drop, bbls.	lb.	.05½	@	.14
"Excello," compressed	lb.	.04	@	.08
"Fumonex"	lb.	.02½	@	.06
"Gastex," f.o.b. Texas	lb.	.02½	@	.04¼
Lampblack	lb.	.07	@	.10
"Micronex"				
c.l. f.o.b. works, bags	lb.	.03	@	—
c.l. f.o.b. works, cases	lb.	.04½	@	—
less c.l. f.o.b. works	lb.	.05½	@	.07
"Supreme"	lb.	.03	@	.07
Thermatomic—"P 33"	lb.	—		—
"Thermax"	lb.	—		—
United, "Dixie" and "Kosmos"				
c.l. f.o.b. works, bags	lb.	.03	@	—
c.l. f.o.b. works, cases	lb.	.04½	@	—
less c.l. f.o.b. works	lb.	.05½	@	.07
"Velvetex"	lb.	.02	@	.05

COMPOUNDING MATERIALS

Aluminum Flake	ton	21.85	@	24.50
Ammonia carbonate, lump	lb.	.10½	@	.12
Asbestine	ton	13.40	@	14.00
Barium carbonate	ton	56.50	@	57.00
Barium Dust	lb.	.05	@	.06
Barytes southern off-color	ton	12.00	@	18.00
Western prime white	ton	23.00	@	—
imported	ton	27.00	@	36.00
Basofor	lb.	.04½	@	—
Bentonite	lb.	.02	@	.03
Blanc fixe dry f.o.b. works	ton	75.00	@	90.00
Carrara filler	lb.	.01¾	@	.02
Catalpo (fact.)	lb.	.02	@	—
Chalk, precipitated				
Suprex white, extra lt.	ton	60.00	@	70.00
heavy	ton	45.00	@	55.00
Clay, Kaolin, domestic	ton	8.00	@	9.00
Aerfloted, Suprex	ton	6.50	@	8.00
Colloidal	lb.	.05	@	.08
Congaree	ton	9.00	@	—
Dark Blue Ridge	ton			
Dixie	ton			
Langford	ton			
Lexington	ton	10.00	@	22.00
Par	ton			
Tensulite		15.00	@	—
Glues, extra white	lb.	.20	@	.25
medium white	lb.	.16	@	.20
Kalite No. 1	ton	30.00	@	60.00
Kalite No. 2	ton	40.00	@	70.00
Magnesia, carbonate	lb.	.08¾	@	.11
Mica	lb.	.04½	@	—
Rotten Stone (powdered)	lb.	.02	@	.05
Soapstone, powdered	ton	15.00	@	22.00
Starch, powdered	cwt.	—	@	2.57
Talc, domestic	ton	12.00	@	15.00
Pyrax A	ton			
Whiting, commercial	cwt.	.85	@	1.00
English cliffstone	cwt.	1.75	@	2.00
Quaker	ton			
Superfine	ton	10.00	@	12.00
Sussex	ton			
Witco	ton	20.00	@	—
Zinc Carbonate	lb.	.09¼	@	.10½
Zinc Stearate	lb.	.18½	@	.22

MINERAL RUBBER

Genasco (factory	ton	40.00	@	42.00
Granulated M. R.	ton			
Hard Hydrocarbon	ton			
Parmr, solid	ton	28.00	@	48.00
Pioneer, MR, solid	ton	40.00	@	42.00
Pioneer-granulated	ton	50.00	@	52.00
R & H Hydro-Carbon	ton	27.05	@	29.00

SOFTENERS

Acids				
Nitric, 36 degrees	cwt.	5.00	@	5.25
Sulfuric, 66 degrees	cwt.	1.60	@	1.95
Tartaric, crystals	lb.	—	@	.26½
Acids, Fatty				
Laurex	lb.	.15	@	.16
Stearex	lb.	.13	@	.17
Stearic, double pressed	lb.	.17	@	.22
Alkalies				
Caustic soda, 76%	cwt.	2.90	@	—
Soda ash, 58% C.L.	cwt.	1.17½	@	—
Oils				
Corn, refined, bbls.	lb.	.07	@	.08¾
Cottonseed, crude		—	@	.04½
Cycline	gal.	.27	@	.34
Degras (c.l. 100 bbls.)	lb.	.03¾	@	—
Less c.l. (10-25 bbls.)	lb.	.04	@	—
Lots less than 10 bbls.	lb.	.04¼	@	.04½
Fluxrite	lb.	.05½	@	.06¼
Palm Lagos	lb.	.04	@	.05
Niger	lb.	.03½	@	.04
Para-Flux	gal.	.17	@	—
Petrolatum, white	lb.	.08	@	.08½
Pigmentaroil	gal.	.18	@	.22
Pine, steam distilled	gal.	.54	@	.61
destructively distilled	gal.	.54	@	.55
Witco Palm Oil	lb.	.07½	@	—
Witco Softener (f.o.b. wks.)	lb.	.02	@	—
Resins and Pitches				
Pitch, Burgundy	lb.	.06½	@	.07½
coal tar	gal.	.05½	@	.06
pine, 200 lb. gr. wt.	bbl.	7.00	@	—
Rosin, grade K, 280 lb.	bbl.	—	@	4.60
Pigmentar	gal.	.18	@	.22
Tar Retort, 50 gal.	bbl.	12.50	@	15.00
Solvents				
Acetone, pure	lb.	—	@	.10
Alcohol, denatured,				
No. 1 bbls.	gal.	.28	@	.29
Benzol, 90%	gal.	.20	@	.21
Carbon, bisulfide	lb.	.05½	@	.06¼
Carbon, tetrachloride	lb.	.06¼	@	.07
Dryolene (f.o.b. Okla.)	gal.	.10	@	.10½
Gasoline, steel bbls.	gal.	.16	@	—
Naphtha, solvent	gal.	.26	@	.28
Rub-Sol (f.o.b. Okla.)	gal.	.09	@	—
Turpentine, spirits	gal.	—	@	.37¼
wood	gal.	—	@	.40
destructively distilled	gal.	.35	@	—
Waxes				
Beeswax, white	lb.	.34	@	.36
Carnauba	lb.	.26	@	.28
Ceresin, white	lb.	.10	@	.11
Montan, crude	lb.	.06½	@	.07
Ozokerite, black	lb.	.24	@	.25
green	lb.	.26	@	.30
Paraffin (c.l.—f.o.b. N. Y.)				
Yellow crude scale	lb.	.02½	@	—
White crude scale 124/126	lb.	.02½	@	—
Refned, 125/127	lb.	.03⅝	@	—
Refined, 128/130	lb.	.03¾	@	—
Refined, 135/137	lb.	.05¼	@	—
Refined, 138/140	lb.	.07¼	@	—

ANTI-OXIDANTS

AgeRite, Gel	lb.			
Powder	lb.			
Resin	lb.			
White	lb.			
Albasan	lb.	.70	@	.75
Antox	lb.			
B-L-E	lb.	.57	@	.60
Neozone	lb.			
Oxynone	lb.	.68	@	.80
Resistox	lb.	.54	@	.57
Retardex	lb.	.35	@	.40
Stabilite	lb.	.57	@	.62
Stabilite Alba	lb.	.70	@	.75
VGB	lb.	.55	@	.66

SPECIALTIES

Aromatics—Rodo	lb.			
Sunproof	lb.	.35	@	.37½
Sponge Paste	lb.	—	@	.30
Tonox	lb.	.56	@	.60

SUBSTITUTES

Black	lb.	.07	@	.09
White	lb.	.08	@	.14
Brown	lb.	.07	@	.11

VULCANIZING INGREDIENTS

Sulfur Chloride (drums)	lb.	.03½	@	.04½
Sulfur flour,				
Ref'n'd, 100% pure (bags)	cwt.	2.40	@	2.75
Commercial (bags	cwt.	1.75	@	2.10
Telloy	lb.			
Vandex	lb.			

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The RUBBER AGE

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Reforesting Plantations

THE idea of developing rubber along forestry lines is not a brand new one but is an exceedingly unorthodox one from the viewpoint of the Middle East planter, trained in estate practice.

Plantation practices along the lines so familiar to rubber men have been alright for the balmy days of good rubber prices but maybe the principles of reforesting can be adopted to advantage, by the rubber planter today, in these rainy days of financial worries.

In this issue of THE RUBBER AGE, Dr. H. N. Whitford, head of the crude rubber department of the Rubber Manufacturers Association, comes out as an advocate of adopting forestry principles not only to new rubber areas but to the old failing estates as well, and makes a convincing argument.